The Builder.

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The Company of Stationers.

STRONG light is thrown upon the manners and customs of our forefathers by the history of the various London Companies, and doubtless much additional light might be obtained from the hidden archives of these ancient guilds. It is not, however, too much to say that the history of the Stationers' Company is of more interest to the literary world than that of all the other companies put together. It is not merely the history of an individual company, but the history of English literature for several centuries. The Registers, which happily were saved from destruction at the time of the Great Fire, are of inestimable value for the entries they contain of books and ballads, more especially those of the Elizabethan age. Thomas Warton, author of the "History of English Poetry," was the first to quote these Registers extensively, and Steevens, Malone, Douce, Chalmers, and Ritson used them with good effect in illustration of their various researches; but it was left to Mr. Payne Collier to extract such book entries as related to the drama and popular literature down to 1586, which he printed for the Shakspeare Society in 1848–49. It has long been felt by literary men that a more complete transcript of these priceless volumes was required, not merely for convenient use, but that what now exists only in perishable manuscript should be put into permanent print. Mr. Edward Arber, with enthusiastic energy, has set himself to supply this requirement, and he has privately printed for his subscribers the first volume of his "Transcript of the Registers for the years 1554–1596." He proposes to carry the work down to 1640, after which date the entries are more numerous and less interesting. After this preamble, we will set ourselves the task of tracing the early history of the only London company which is now entirely restricted to the members of its own craft. The Stationers' Company was incorporated by charter of Philip and Mary on the 4th of May, 1556, and on the 1st of February, 1560, was created by the Lord Mayor one of the liveried companies of the City, but its history dates much further back than the first of these years. The writers of court-hand and text letters, and limners or illuminators, are mentioned as early as the year 1357 as united in some way, and on the 12th of July, 1403 (4 Henry IV.), the reputable men of the craft of writers of text-letter, those commonly called "limners," and other good folks citizens of London, who were wont to bind and sell books, presented a petition to the mayor and aldermen. In this same year, apparently in answer to the petition, the Lord Mayor gave them authority to form themselves into a Guild or Fraternity, which there is every reason to believe was the precursor of the craft of stationers. When the successors of Caxton began to multiply, they felt the necessity of being united as a guild, but in place of forming one for printers alone, they joined themselves to the stationers, and so the old name has been continued to our own day to represent all the trades that go to the production of a book. The Stationers' Company appears early to have taken a good rank in the order of the London companies. In a document dated 1501–2 we find it numbered 53, or seventh in order of the companies without liveries, and in 1574, the fourteenth year of its existence as a livery company, it stood in the first class of the minor companies. An assessment was made in this latter year of the proportion of 400 men appointed to be sent to "the queen's majesty's ships." The twelve principal companies were to supply from fifteen to forty men each; then followed the Leathersellers with thirteen, and the Brewers with ten; after these the highest number was five, at which amount were assessed the Stationers, Dyers, Tallowchandlers, Cutlers, Pewterers, Sadlers, Cordwainers, and Coopers. The twenty-one other companies were all assessed for smaller numbers, some, such as the Curriers, Plumbers, Masons, Weavers, &c., supplying only one man each. In 1591 the City of London furnished six ships and one pinnace towards the fleet, under the command of Lord Thomas Howard, which cruised all the summer about the Azores. 7,500*l.* were required for this purpose, of which sum the twelve principal companies supplied 5,174*l.* After these the largest contributors were the Dyers, Brewers, Leathersellers, and Girdlers; then came the Stationers, Whitebakers, and Barber-surgeons, who were each assessed at 80*l.* The remaining thirty-six companies were set down for much smaller sums. In a list dated 1602–3, the Stationers are numbered 49; but their assessment is as high as any after the first twelve.

The first Master of the Stationers' Company was Thomas Dockwray, who was neither a printer nor a publisher, but a Notary Public and Proctor of the Court of Arches, and it is a noteworthy fact that the company, which has since stoutly resisted the intrusion of lay members, should have chosen a stranger for their first master. The Stationers qualified to vote for members of Parliament are only outnumbered by the Spectacle-makers, and of the present livery of 312, upwards of 300 are in the trade. Formerly the freedom of the company was obtained (1) by serving an apprenticeship of not less than seven years; (2) by patrimony, whereby any son born subsequently to his father's freedom could claim his own freedom by virtue of being freeborn without serving any apprenticeship; (3) by redemption or purchase. The members elected under this third head usually paid a largely-augmented fee, but the celebrated Sir Thomas Smith, one of these redemptioners, merely paid the usual fee of 3s. 4d. on the 23rd of April, 1571, and the Rev. Robert Crowley, the well-known printing clergyman, was admitted to the freedom on the 27th of September, 1579, and afterwards to the Livery, without the payment of any fee. At present no one is admitted to the freedom unless he is connected in some form with the production of books, or takes it up by patrimony. There was of old a class of "brothers" in which were incorporated Continental workmen, then technically known as "Strangers," and English workmen coming from "beyond the liberties of the City," who were called "Foreigners." Many of the exiled Dutch and Huguenot workmen appear to have been enrolled as brethren of the Company. These brethren were not entitled to bind apprentices, but they might teach and employ them on behalf of freemen.

The Stationers have not always been located in the immediate neighbourhood of Paternoster-row, and the present building in Stationers' Hall-court is the last of a series of halls used by the Company. In the early days of the Corporation, when it was only a craft, it possessed a hall in Milk-street, Cheapside, the street in which Sir Thomas More was born, "the brightest star that ever shone in that *via lactea*," says Fuller. In 1554, two years before the incorporation of the Company, the Brotherhood purchased by voluntary subscription their second hall in St. Paul's Churchyard, but they still retained possession of the house in Milk-street, and on the 26th of May, 1611, a "committee was appointed to contract for the sale of the lease of the hall in Milk-street." Nothing would appear to have come of this resolution, for Nichols, in his "Literary Anecdotes of the Eighteenth Century," writes:—"The Company still possess two houses in Wood-street and three in Friars-alley and Clement's-court, in Milk-street, built after the Fire of London on the site of their original Hall." St. Paul's Churchyard, in the middle of the sixteenth century, and for many years afterwards, was a quiet enclosed place like the closes we still see in the old-fashioned cathedral towns. It was probably very similar to the beautiful surroundings of Salisbury Cathedral, though certainly not quite so extensive. Old St. Paul's, with its noble spire, was not unlike the Wiltshire Cathedral, and the noble trees in the yard went to make the resemblance more near. The house which the Stationers purchased was on the south-west side of the churchyard, and was known as Peter's College, it having been originally a college for chantry priests belonging to St. Paul's. In 1549, William Seres printed at Peter's College before he moved to the sign of "The Hedgehog" close by, and during his occupancy six men were killed by the falling of earth upon them while engaged in digging a well in the garden. Seres was a benefactor to the Company, and probably had much to do with their movement to the college, which was rebuilt for them. In May, 1570, the Company paid 20*s.* 1*d.* "for the payvynge of the longe cawsey betwene Powles Church dore and the

Stacioners' Hall," containing 98 yards. After the Company left the building it was converted into the Feathers Tavern, and according to Nichols ("Lit. Anec.," iii., 554–5), "covered the spot now (1812) occupied by the garden of the deanery, and the small court in which, after the Fire of London, four houses were erected by Dean Sancroft for the use of the minor canons." St. Paul's Churchyard, before the Fire, was chiefly inhabited by booksellers, and therefore the Company of Stationers were amongst their own people. Several of the first editions of Shakspeare's poems and plays were published by different booksellers in this place, as "Venus and Adonis," and the "Rape of Lucrece," at the White Greyhound; the "Merry Wives of Windsor," at the Flower de Luce and Crown; the "Merchant of Venice," at the Green Dragon; "Richard II.," at the Fox; "Richard III.," at the Angel; "Troilus and Cressida," at the Spread Eagle; and "Lear," at the Red Bull. The churchyard, however, was not large enough to hold all the stationers, therefore they overflowed into Paternoster-row, where, besides makers of rosaries and pictures of saints, dealers in books established their stalls. According to Stow, the houses in this street were first built outside the wall of the churchyard, by Henry Walles, mayor in the year 1282. When the Stationers' Company purchased Abergavenny House, at the west end of Paternoster-row, and left St. Peter's College, they still kept in the immediate neighbourhood of their own members. On the 26th of May, 1611, a committee was "appointed to be overseers for the companye and directers of the buyldinge, alteracons, and reparacons of Bergavenny House." Stow describes the place in the following words:—"At the north end of Ave Mary-lane, is one great house builded of stone and timber, of old time pertaining to John Duke of Britaine, Earl of Richmond, as appeareth by the Records of Edward II. Since that it is called Pembrookes Inne, nere unto Ludgate, as belonging to the Erles of Pembroke in the times of Richard II. the 18 yeare, and of Henry VI. in the 14 yeare. It is now called Burgaveny House," and belonged to Henry Neville, sixth Lord Abergavenny, who died in 1587. The house was altered by the Company, and "a new faire frame of timber" was added to suit it to their purposes. This,—the third hall,—was destroyed in the Great Fire, and on its site the present hall was built in 1670; but the front that is now seen in Stationers' Hall-court was added by Robert Mylne in 1800.

We will now turn to the consideration of the Registers, the perusal of the pages of which will give us a lively idea of the enterprise of the early printers. It must often have struck those who have handled the massive old folios of a former age how great were the labour and risk undertaken by the Barkers, the Tottles, the Fields and the Days of the sixteenth century. These honoured names frequently occur in the Registers of the Stationers' Company, which contain a large mass of materials towards a history of bookselling in England. Mr. Arber has not been content to produce a mere transcript of the Registers, but has illustrated the main entries by the insertion of important documents; for instance, pages 41-42 being blank in the original, we find in place of white paper in the transcript a copy of Christopher Barker's Report on the Printing Patents of 1558–1582. Barker shows how his office of Queen's printer has been shorn of its chief emoluments, and gives some interesting particulars. He writes, "Proclamations come on the suddayne, and must be returned printed in hast: wherefore by breaking of greater worke I loose oftentimes more by one Proclamacon, than I gayne by sixe, before may serventes can comme in trayne of their worke agayne, and in many yeares there hapeneth not a proclamation of any benefit at all." He goes on to point out how large a sum was required to print the whole Bible, yet he "did [as some have termed it since] gyve a desperate adventure to imprint fower sundry impressions for all ages, wherin I employed to the value of three thousande pounde in the terme of one yere and an halfe or thereaboute, in which time if I had died, my wife and children had ben utterlie undone, and many of my frendes greatlie hindered by disbursing round sommes of money for me."

It would be difficult to over-estimate the value of the Registers, for not only are they the final authority in questions of dispute about books, but being the account-books of the Company, they also contain a large amount of information concerning prices and the manners and customs of our forefathers. We cannot attempt to analyse their contents, but we may point to some of the chief matters of interest.

1. As to their Illustration of Literature.—The present volume of the transcript stops at the year 1596, and does not therefore contain some of the most interesting entries concerning literary history. We find innumerable notices of old ballads, proclamations, almanacks, and such books as "An Abstracte of the Genealege and Race of all the Kynges of *Englande from the Floude of Noe unto Brute*," "Ye Cosmographie of the Worste Parte of the Worlde," "The Natures and Properties of all Wynes yat are commonly used here in England." Mr. Arber proposes to show, when he has finished his great task,—"How far the Registers are deficient as a record of their total contemporaneous literature, and the why and wherefore thereof.* Who were the greatest publishers? Who were the greatest printers? What kind of books were generally issued by each publisher? The answers to these queries, with a list of works now apparently lost, will constitute the consummation of this inquiry." Sometimes we come upon an entry that throws some light upon the family life of the old stationers; for instance, two sons of two celebrated fathers,—both Royal printers, and both among the founders of the Company,—obtained their freedom, on the same day, the 18th of May, 1565, viz., John Cawood, the younger, and Reginald Wolfe, the younger.

2. Illustrations of the history of the Company. The receipts largely consist of fines for various offences, such as printing without a licence, and selling contrary to ordinances. The fee for admittance into the livery has gradually increased from 15s. in 1560 to 51*l.* 3s. in 1875. The payments show us how the Stationers fared at their dinners, what they had to eat and drink, and what they paid for each article. They paid 5s. to the cook and his man for dressing the dinner, and 2s. for a bushel and a half of roses, with pot flowers for the windows. On another occasion, the cook and his men received 5s. and the minstrels 12s. The Company required some building done for them occasionally, and the items of expense are all set down. In 1560, the carpenter and plasterer received each 1s. 2d. a day, and the labourer 6d. In 1570, the price of 100 tenpenny nails was 8d.; of 34 yards of wainscot, 3*l.* 8s.; of two wainscot doors, 36s.; and the charge for painting all the lower end of the hall with green, yellow, and red, was 2*l.* 5s. On the 10th of January, 1571, the Queen visited Sir Thomas Gresham, and the Company erected a scaffold on the occasion, which cost them 3*l.* 4s. 6d.

Thirdly, the registers contain matters connected with the general history of London, as the assessments to which we have already referred. Besides these, the companies had to procure soldiers and fit them out completely: thus, in 1560, the Stationers were ordered to send two men to the English army who were about to besiege the French troops in Leith. They paid 9s. 4d. for two jerkins, 4s. for "two caps and skulls," 12d. for a dagger, 12d. for a pound of powder, 29s. for two new guns, 2s. 8d. for a doublet of canvas, besides other items duly set forth. Mr. Arber wishes to place the men of business by the side of the men of action in public estimation, and to rank the Cawoods, the Days, the Denhams, and the Barkers with the Drakes, the Hawkinses, and the Frobishers. We are not prepared to follow him to this extent, but all lovers of books must cherish a kindly feeling for the men who at some risk to themselves placed the works of genius in such an imperishable form that they can be enjoyed by us in these latter days.

The world has outgrown the companies and guilds of the Middle Ages, but they did valuable work in their time, and mixed up with their private history are particulars which the world would not willingly let die.

Working Men's College, Blackfriars-road.—The ninth year of this college will begin on Monday, September 6. We are asked to mention that there are night schools for men and women, for the study of arithmetic, book-keeping, reading, Latin, algebra, drawing, history and geography, French, German, physical science, and English literature.

* This question is partly answered by the fact that in early times all books of importance were protected by a special privilege which exempted them from the jurisdiction of the Company

THE CHANNEL TUNNEL: POSITION OF THE ENTERPRISE.

At length this vast enterprise, which, if completed, will certainly confer upon the engineering genius of the nineteenth century a conspicuous fame, has a chance of triumph over all the obstacles that have been predicted. The latest measures in connexion with the project have been of the utmost importance. A Bill has passed the two Houses of Parliament, authorising the acquisition of certain lands in the parish of St. Margaret-at-Cliffe, in the county of Kent; and, at the same time, the French Assembly, before its dispersion, gave at least nominal effect to a scheme for opening similar works on the opposite shore of the British Channel at Sangatte. Neither in the English nor in the French Reports or Bills is there found a full explanation of the plans, as they lie now, in manuscript, at the Board of Trade; but an examination of the documents, or the raw official materials of which they are composed, suffices to inform us as to the actual state of the question. It is simply this:—In the year 1862 a company was incorporated to construct an underground, and also submarine, tunnel between England and France, with all necessary approaches, accessories, and conveniences, so as to afford the means of perfect land communication between the two countries, and the powers it proposed to claim were legally justified. It would be superfluous to enter upon the legislative wranglings over plans, Acts to be abolished or construed, purchases, and costs, since the principal importance of the subject to the public consists in the mighty mechanical work to be undertaken. This will not be, at the outset, it may be as well to explain, an attempt directly to tunnel beneath the Channel for a railway line. It is only contemplated, according to the last statements deposited at the Board of Trade, to examine into the probabilities, or possibilities, of opening a way for the locomotive and the train at a safe depth below the sea. The present idea, then, is to sink, on both sides of the Channel, at particular points which are indicated, shafts through the grey chalk, or that which is almost nonporous and impermeable by water, and thence to conduct an excavation tending to meet from opposite ends, which should equal,—as it would, if triumphant, more than equal,—the perforation of Mont Cenis. However, the lawyer's aspects of the question are, at this stage, of little importance; the two Governments are agreed, and the thing has now only to be done. But what millions have been sunk in an effort to cross the British Channel, and conquer that "thin streak of sea-sickness" which, as popular tradition still asserts, frightened the famous Boulogne flotilla! Leaving out of consideration four of the Channel ports,—Hamburg, Rotterdam, Antwerp, and Ostend, as well as Havre and Dieppe, upon which this achievement, by the way, would not inflict any great injury, because they are commercial, rather than passenger, ports,—it is the narrowest sea which is the most formidable, which is, indeed, the "most" of the Continent. The sufferers who, in default of a subway or drawbridge, endured the tortures of this brief passage, amounted last year to nearly half a million, and no number of *Castalias* or *Bessemers*, no matter how scientifically built, can meet the demand for those who feel an ineradicable hatred of salt and swelling water. There are excellent steamers, no doubt, employed upon the Channel service already, but where and what are the harbours? It is not the mere Channel passenger who finds himself inconvenienced. The invalid from Australia, or India, often declares that this bit of chopping sea-current is the most trying part of his voyage. He hates it worse than the rollers of the Atlantic, or the sultry nights of the Red Sea. Thus affirms, at any rate, Captain Tyler, whose report is in course of preparation for the next session of Parliament. His estimates concerning this little water journey between France and England are of peculiar interest. There is an average, he says, in the course of the year, of thirty storms; of 100 days bringing with them heavy seas and troublesome breezes; of 108 moderate days happening in succession; and 90 of cold weather. The two opposite coasts, so to speak, are hostile in character,—what with their cliffs, bars, sands, necessity for breakwaters, masonry piers, curves, capes, and shallows; and the problem has been, for many years, how to avoid the dilemma so long felt. Calais is, undoubtedly, so to speak, the English harbour of France. It

may be, geographically, a little less direct on the road to Paris than Boulogne; but it has been selected, whether for one reason or another, as the great centre of communication, by way of Brussels and Cologne, for Strasburg, the Rhine, the North of Europe, and North and South Germany. There is nothing, therefore, to be wondered at in the circumstance that so constant desire should have existed, or so continuous an endeavour been made, to abridge and facilitate this traffic, which, it may be said without exaggeration, is vital to the common life of Europe.

In the first place, however, it was deemed necessary to ascertain the probability of successful excavation. Geologically, the bed, and, nautically, the depths, of the Channel, are well known; yet sufficient has been ascertained, in other respects, to induce an opinion that the experiments should be undertaken, not precisely at Calais, but at a point near Ambleteuse, near the familiar village of Andresselles, where the deepest water, near that coast, is to be found. Originally, as every one is aware, the project was regarded as an impossibility, and enormous steamers, or ferry-boats, were suggested, which would have involved a world of new piers, basins, and sluice-gates; indeed, the fluctuation of ideas upon the subject has been the chief cause of its being left so long to wither in the pigeon-holes of speculation. After the great ferry scheme had broken down, the designs of Mathieu, the French engineer, for a Channel tunnel were deliberately brought upon the carpet, but as deliberately brushed away; for they were lost, and have never been recovered. Gamond came next, with a series of geological demonstrations, which have sustained the criticisms of time and science, and, at his instance, a Commission was granted by the late Emperor of the French, "which," in the language of the report, "appears to have come to the conclusion that it was desirable to test his investigations by sinking shafts and driving short headings under the sea, at the joint expense of the two Governments." But this is a French rather than an English view of the matter. Another countryman of our own, Mr. Low, also laid a plan before the Emperor, in 1867, as Sir John Hawkshaw had done, with even more elaboration, in the previous year, and Mr. Remington in 1865,—and their rivals, whose names deserve to be noted, although their ideas cannot be here described at length, were, — MM. Franchot, Tessier, Favre, Mayer, Dunn, Austin, Sankey, Boutet, Hawkins Simpson, Boydon, and Brunlees. It is worth while to observe the list, because, if the work has not yet been accomplished, it has evidently not been for want of ingenuity and will. It has miscarried, however, to a certain extent, through the variety and contradiction of the schemes projected. Apparently, this difficulty has been overcome, and the resolve has been arrived at definitely to pierce the stiff grey chalk. Mr. Remington, as appears from the printed remarks forwarded by him to the Board of Trade, would have selected the line from Dungeness to Cape Grisnez, in order to avoid the chalk and the fissures which he dreads encountering in the bed of the Channel, and to work in the Wealden formation, which he believes would afford a greater chance of success. Such is the latest aspect of the matter, as presented to the Department at Whitehall. But the report does not stop short here. It recapitulates the dreams, as some of them may indeed be termed, of other adventurous engineers. There were two or three who proposed bridging the Channel, and one actually professed himself prepared to build a "marine viaduct" from Dover to Cape Grisnez, with iron girders propped on 190 towers, 500 ft. apart, and 500 ft. above the water, and he estimates the cost of such an edifice at simply 30,000,000*l.*! Again, there was, as already mentioned, Mr. Hawkins Simpson, with his submarine tunnel on a pneumatic system, called by him, however, the "Eolian" principle, for which he claims the merits of cheapness, expedition, superior ventilation, and easier utility. It is interesting to note the inexhaustibility of inventors in these respects. There is Mr. Alexander Vacherot, who has submitted to the Board of Trade a scheme which, we ought to say, he laid before the Emperor of the French in 1856, for "laying on the bed of the sea a tunnel made, or formed, so as to constitute, so to speak, a monolith." He would "construct it on the shore," and "complete it in sections, to be drawn down into their places when finished." The representative officer of the department dismisses most of these projects with a critical, yet downright, denial of their practicability, and his language may be worth quoting:—"Although it was desirable to advert to these various expedients, it is not necessary, in this place, to say more in regard to them, than that, while I am unable to convince myself of the feasibility of any bridge scheme, I conceive that it might be wise to test the practicability of a tunnel by means of preliminary driftways." This is precisely what it has been agreed, by both Governments, both Legislatures, and the united companies, shall be done. It is true that not far from forty years have elapsed since M. Thomé de Gamond first attempted to prove that a submarine thoroughfare, between the two countries, was possible; but gigantic advances have been made, during the interval, no less in opinion than in science and mechanics. No international fears are now created by the Mont Cenis excavation, or the Suez Canal. They are regarded, indeed, as treaties and pledges among the Powers of civilization. The shores of the Atlantic have been united by a cable; the barrier of the Alps has been virtually destroyed; and, with reference to the latest and, perhaps, grandest project, a careful geological survey has shown, at any rate, the possibility of cutting a tunnel through the narrowest, or almost the narrowest, part of what are sometimes designated as the Straits of Dover, a distance of twenty-two miles, or slightly more. Trial borings and soundings taken at different points by Sir John Hawkshaw and the late Mr. Brassey indicate a bed of chalk as the stratum through which, after leaving the coasts on either side, the perforation is to be made. Of course, on the freedom of this bed from accidental fissures, dislocations, and "faults," the success or failure of the vast experiment depends; but there is every reason for believing that it lies in a mass, continuous and compact, between, as it were, two impenetrable ramparts of clay. From the boring on the English coast, in St. Margaret's Bay, a great unbroken depth exists,—175 ft. of "upper" chalk, and 295 ft. of "lower" or grey, chalk which is occasionally confounded with the clay itself; while the workings on the French side, near Sangatte, show 270 ft. of the upper, and 480 ft. of the lower. Experimental shafts, on a narrow scale, resembling somewhat the borings for an artesian well, have been carried to a depth of 600 ft.; but these supplemental demonstrations, in point of fact, were superfluous, the main object being to ascertain the depth and nature of the Channel bottom, which, at its deepest, is 180 ft., and its average rather more than 100 ft. below the surface of the water. No sudden changes of profundity, and no reefs or banks, are discernible, to the knowledge of the most experienced men, and the bed of the "thin streak" is shown to be a gradual and almost equally rising and falling concavity between the two coasts. Under these conditions, as the reports inform us, and taking into account the deep homogeneous strata to be bored—about 500 ft. thick—not less anywhere than 200 ft. between the crown of the arch and the bed of the Channel (allowing for the precipitous cliffs on either side)—every hope may be entertained that the enterprise, though so incomparably superior in its magnitude to that of Isambard Brunel for constructing a Thames subway, will be successful. The Thames Tunnel was, indeed, in some respects, a more hazardous enterprise. Little was then known about sub-aqueous boring; the materials were more shifting than those which the Channel excavators will have to encounter, — irregular strata of loose earth, masses of sand, gravel, mud, and clay, liable to constant disturbance; and a formidable tidal action. In remembrance of these obstacles, it was thought that a tunnel beneath the sea must present insuperable difficulties. But we have gone through the great submarine galleries of the Cornish, Cumberland, and other mines, and observed no more drip than would be evident in any cavern of the Derbyshire Peak. For instance, the mine of Shiel Lode runs to a length of 80 fathoms below the level of the sea, at a depth of less than 18 ft. from the water. It has never been inundated, nor have the workmen (workwomen also, we are sorry to add) suffered through deficiency of ventilation, space, and provisions for their comfort. To conclude, practically, however, the first boring is to be about 9 ft. each way, which dimensions are asserted are the least that can be depended upon as a test, or even as an experiment. Then will follow the work of enlargement, along the walls and roof, through the agency of a machine which, it is affirmed, can bore chalk at the rate of a yard, or more, an hour. A difficulty, however, may still have to be met. The most costly labour of any will be the removal of the excavated stone, clay, and soil. Tunnels driven underground have usually shafts, at intervals, through which the disturbed earth is raised, and their frequency, by enabling the excavation to be broken up into short lengths, reduces considerably the arduousness of the work. Such advantages, however, will not exist in the case of the projected Channel Tunnel. All the earth, or rock, or clay, or chalk will have to be removed to the terminal shafts at either end, and this toil and expenditure must increase as, by progression of industry, the headings are removed to greater distances from the ends. Nevertheless, the task is now fairly in hand, and we may rely upon the spirit and the genius of the age in which we live to carry it through effectually.

THE MASONIC FRATERNITY IN THE OLD WORLD AND THE NEW.

IN writing of an order which claims an existence away down the centuries further back than even the building of King Solomon's Temple, whose badge is more ancient than the Golden Fleece or the Star and Garter, whose secret mission covers the world, and whose principles embrace mankind, we beg to premise that it is not our object to seek to advise any non-Mason to embrace the "Science of Symbols," nor, we need hardly add, is it our remotest intention to reveal any of the secrets of the craft. We have a different purpose, as the reader will presently see. Both in the old and the new world certain events have taken place of late that have done more to bring Freemasonry before the eyes of the world, and to prove its power and popularity, than anything in its history has ever done before. To begin with our own country. The vast gathering of the brethren in the Royal Albert Hall, and the gorgeous and solemn ceremonial when the Prince of Wales was made the head of the order, will be long remembered by the Masonic brotherhood of the United Kingdom. The fact also that two more royal princes have likewise become brothers of the mystic tie,—the Duke of Edinburgh and Prince Leopold,—has contributed not a little to give additional strength and popularity to the craft. Nor must we overlook the recent presentation by the Baroness Burdett-Coutts of official chairs to the master and wardens of the Lodge which bears her honoured name,—in itself an incident in the history of Freemasonry which, bearing in mind the character of the donor, ought, one would think, to make the craft find greater favour in the eyes of some ladies,—particularly married ladies,—than by all accounts it does. The benevolent baroness is not, however, the only lady who has practically and substantially shown sympathy with the order and its objects. On the occasion of the dedication of the new grand Masonic temple in New York the other day, a number of the fair sex of that city presented the Grand Lodge with a beautiful banner, and the Lodge acknowledged the gift by a special vote of thanks. Touching the dedication of this new temple, the New York journals agree that never in the history of the country or the craft has there assembled such a congregation as that which participated in the solemn and peculiar ceremonies observed on the occasion. From England and Canada, and from almost every State in the Union, came representatives of the order. Clad in various regalia, the majority in the garb of the master workman, and thousands in the attire of knights, who symbolically illustrate the chivalric achievements of ancient story, bearing mystic emblems, and laden intellectually with legends and lessons that unite the present with the dim and misty past, the vast procession marched through the streets of New York, and was regarded with an interest unparalleled by any other public demonstration. The very name of their order signifies that they are builders, and although the order has long ceased to be practical masons, consistency compels them to give heed to the architecture of their own buildings. Accordingly, the new temple, we are told, is the best specimen of good masonry that has ever been dedicated in America to the observance of the Masonic ritual. It combines the requisites of solidity and taste more perfectly than any other structure of the kind, is the costliest Masonic edifice in the United States, and no unworthy type of the social and moral fabric which the Freemasons claim to have constructed.

Among our American brethren Freemasonry is a much more extensive and flourishing institution than it is with us. In the United States alone there are no fewer than 8,069 lodges, with 524,649 members. In England, Scotland, and Ireland there are only 2,136 lodges, and 131,150 members, which membership, however, includes (under the registry of England) lodges in Australia, New Zealand, China, New South Wales, Spain, South Africa, Burmah, Jamaica Barbadoes, Demerara, Brazil, and other countries. It will be found that nearly all the greatest American citizens have been brothers of the mystic tie,—Franklin, Washington, Lafayette, Daniel Webster, Henry Clay, being among the number. Especially interesting is the connexion of Franklin and Washington with the craft. When only in his twenty-sixth year, in 1731, we find Franklin writing thus:—"There seems to me at present to be a great occasion for raising a united party of virtue, by forming the virtuous and good men of all nations into a regular body, to be governed by suitable, good, and wise rules, which good and wise men may be more unanimous in their obedience to than common people are to common laws. I at present think that whoever attempts this aright, and is well qualified, cannot fail of pleasing God, and meeting with success." Franklin was made senior warden of the Tun Lodge, Philadelphia, in the following year, and in 1834 provincial grand master of Massachusetts, master of all the Masons in Philadelphia. It is worthy of note that the first Masonic book published in America was printed this year by the great philosopher, then in a humble way of business in Philadelphia. It is a small quarto, a reprint of the English Constitutions of Masonry. A few copies still exist in antiquarian collections. Moreover, the first written warrant granted in America by provincial authority was to Franklin, and the oldest American Masonic letters that have been preserved were written by him. He afterwards became Provincial Grand Master of Pennsylvania, and he was honoured with the like rank by the Grand Lodge of England when he visited this country for the second time in 1754. During his residence in Paris as American Minister (1776-85) he became affiliated, either as a special or honorary member, with the Grand Orient of France, and was presented by his French brethren with a medal, bearing on the obverse a fine bust of Franklin. Reverse, Masonic emblems, the serpent's ring, carpenter's square and compass; in the centre a triangle and the sacred name in Hebrew, &c. Legend—"Les. Mac. Fran. à Franklin, M. de la L—— des 9 Sœurs O. de Paris 5,778." The name of Washington is held in even greater esteem by his Masonic countrymen, who speak of him as "the great master workman," just as the nation at large speaks of him as the "father of his country." He early sought admission into the fraternity, and never lost an opportunity of advancing the interests or promoting the honour of the craft. While commander-in-chief of the American Revolutionary army, Washington countenanced the establishment and encouraged the labours of a travelling Lodge among the military, believing that it would be the means of checking the ferocity of soldiers, and alleviating the miseries of war. The Lodge was named Washington's War Lodge, Morristown, New Jersey, and it still flourishes. While his army was encamped here an interesting incident occurred which showed that the great General was true to his principles. A party of American troops was sent out on a foraging expedition. By and by, they encountered a number of British soldiers, who had been placed on guard over some baggage. A skirmish ensued, and the British were taken prisoners, and, with their baggage, carried to the American camp. On an examination of the baggage a Templar's sash and a Master's apron were discovered, and excited some surprise among the soldiers, who immediately took them to the tent of the Commander-in-chief. As soon as Washington's eyes fell upon the articles, he gave instructions that the baggage should be carefully protected from injury; that inquiries should be made after the owner of the Masonic articles, and if found that he be brought immediately to his tent. The owner soon made his appearance; kind words and friendly greetings attended his reception. He was treated with the greatest kindness while a prisoner, and shortly afterwards sent home to England on parole. This person was Sergeant Kelly, of the British army, who after his arrival home, lived to a good old age, and preserved the sash and apron with the greatest care. On his dying bed, Kelly exacted a promise from an old friend, a brother of the mystic tie, that he would forward, after his death, the sash and apron to Montgomery Lodge, New York, with a letter stating them to be a memento to the fraternity of the kindness and fraternal regard of George Washington toward a humble brother and a stranger. The relics were presented to the Lodge in 1838, where they are duly treasured with several other memorials of the Revolutionary war.

The oldest Masonic Lodge in the state of New Jersey, though not in America, is St. John, No. 1, Newark. It is fifteen years older than the Republic, and possesses a national interest from its relation with Washington, and his illustrious Franco-American compatriot General, the Marquis de Lafayette. The latter was initiated by the Fredericksburg Lodge in Virginia when he was only twenty years of age. He had just landed in the States to fight for the Republic. Three years afterwards he was made a Master Mason, Washington performing the ceremony. It took place at Morristown aforesaid, though the jewels used on the occasion were those belonging to St. John's Lodge. Some years ago the lodge-room was broken into, and all the jewels were carried off, including those used by General Washington. This Lodge boasts of having been the first organisation of any kind in America to celebrate the birthday of the father of his country, and it has done so ever since the year 1792, seven years prior to the death of their most illustrious brother. Remembering what he has done for the craft, as well as for his country, little wonder that American Masons should exult that the name of Washington stands enrolled in the list of brethren, and that they cherish the remembrance of his virtues and his services as a rich legacy for their emulous example.

A few figures will show at a glance the relative strength of Freemasonry in different countries in the Old and the New World. It may be stated that in England Freemasonry has from early times occupied a prominent position. As our readers are aware, the principal office-bearers at present are,—Grand Master, H. R. H. the Prince of Wales, K.G.; Deputy Grand Master, the Earl of Carnarvon; Senior Grand Warden, Lord Henry Phynne, M.P. The Grand Lodge of Scotland has for its Grand Master Sir. R. M. Shaw Stewart, bart.; Deputy Grand, the Earl of Roslyn. The Grand Master of Ireland is the Marquis of Abercorn; Deputy Grand, R. W. Shackleton; Senior Grand, Lord Viscount Powerscourt. The Grand Lodge of Prussia has for officers, His Imperial Majesty the Emperor William, Protector; the Crown Prince Frederick William, Deputy Protector. The following figures represent pretty closely the number of lodges and memberships in the countries mentioned:—

	Lodges.	Members.
United States	8,069	524,649
England	1,345	91,730
Prussia	309	35,193
Scotland	419	21,000
Ireland	372	18,000
Canada (Ontario)	323	14,530
Quebec	37	1,731
Italy, 65 Ldges., 151 Chaps.		12,050
France	266	10,800
Norway and Sweden	25	10,800
Spain	108	4,200
Portugal	57	2,800
Belgium	74	2,185
Nova Scotia	63	3,113
New Brunswick	30	2,038
Switzerland	28	1,800
Mexico	13	626
British Columbia	10	510

There are many places which eclipse some of the above, though we do not happen to have the returns of membership. Thus, South Africa is said to have 25 lodges; New South Wales, 31; Hungary, 33; New Zealand, 50; the Netherlands, 66; India, 68; Peru, 71; South Australia, Tasmania, and Victoria, 95; and Brazil, 104 lodges; while, according to a recently-printed statement, Arabia is said to contain 20,000, and Persia 50,000 Masonic brethren. When we add that a few months ago even his sable majesty, King Kalakana, the ruler of the Hawaiian Islands, was (having been duly vouched for), received as a brother Mason by the Grand Lodge of New York, enough has surely been said in support of the statement with which we started—that the secret mission of Freemasonry covers the world, and that its principles embrace mankind.

THE EXCURSION OF THE ARCHITECTURAL ASSOCIATION TO THE NEIGHBOURHOOD OF ANGOULEME.

THE sixth excursion of the Architectural Association has commenced, with favourable prospects, at Angoulême. Our readers will remember the very remarkable exhibition of the results of the 1874 excursion in the north of France, which were brought together at a meeting held in Willis's Rooms in December last, when Mr. Sharpe recounted to the Association in general, and to a large company of visitors, what the delegates of the Association had done in investigating the principal churches of the Transitional Period of architecture over a line extending from Laon to Chartres; and when by his own exertions, and those of various members of the party which had accompanied him, the walls were completely covered with a series of very effective and accurately executed detail drawings, obtained by enlarging a great number of carefully drawn and measured subjects selected from the sketch-books of the excursionists. On the present occasion, as on the former, the president of the Association and the secretaries accompany Mr. Sharpe, and as the number is necessarily more limited than an excursion party nearer home would be, every member understands that he must consider himself in a peculiar sense as a delegate, and that it is incumbent on the body in general to endeavour, by combination, to surpass the results obtained last year (valuable as those were), and that something should be produced of an intrinsic and exceptional value. Mr. Sharpe fully expects to do this, both on account of the peculiarity of the district now visited, and by the more systematic arrangement of the work to be distributed amongst his pupils—for such for the time being they are, and evidently do not wish to be thought anything else. The excursion, commencing Monday, August 30, will end on Saturday, September 11. During a similar period of last year materials were collected from which no less than eighty plates are to be engraved. It is true that last year there were sixty excursionists or more, and this year the number is limited to thirty. The latter number, however, includes most of the chief contributors to last year's work, and the losses may be said to be more than made up by fresh accessions. Some also who last year were young and inexperienced and comparatively ineffective, promise to be very useful. Another favourable circumstance is that the ground to be gone over is much less, so that probably at least one-half of the time taken up in moving from one place to another will be saved. Forty-two churches are to be visited, according to the list which has been given out. The district is almost unknown to the English artist and archæologist. Three of the churches, viz., Fleac, Roulet, and Angoulême, are slightly illustrated in the late Mr. Petit's work on French churches. The real discoverer of the architectural value of the district is Mr. Sharpe, who has been over the ground minutely with a view to this excursion.

The peculiarity of the architecture of these churches consists in their being derived from that very remarkable building, St. Front at Perigueux, a church which unhappily has suffered the very worst extremities at the hand of the modern French restorer. The peculiarity chiefly consists in the absence of aisles, and in the nave, choir, and transepts being vaulted by a series of domes, with a larger and loftier one at the crossing. St. Front itself was derived from St. Mark's, at Venice, and is only a very little later in date to that church. These churches in the Angoulême district are, again, a little later than St. Front, but amongst themselves nearly coeval, namely, of the twelfth century. Thus they form an exceedingly valuable step in the history of architecture, and it is hoped that the result of this excursion will be a complete illustration of this particular type. The time is very opportune, because many of the buildings to be visited are as yet untouched by the levelling hand of the French restorer. He is on the road, however, and has begun in bad earnest at Angoulême Cathedral, of which a large part has been pulled down, not from structural necessity, but to show how cleverly it can be built up again. We have had occasion sometimes in England to protest against a case of church restoration when it has seemed to be carried to an unnecessary extent, but even the least conservative of English restorers would hesitate to do what is done in almost every town in France. Let us hope that the influence of the excursionists, who are everywhere received with the

greatest courtesy, may be of some use in encouraging a healthier feeling amongst the French architects and clergy in this particular. Whether this result, however, can be obtained or not, it cannot but be of very great importance to English art that so considerable a number of students should be trained under such a director as Mr. Sharpe, and amongst such monuments as are presented by one of the most interesting districts of France. The first day's work, consisting of a round through Fleac, Linars, Trois Palis, Nersac, St. Michel, and back in the evening to Angoulême, has been duly followed out. Every one was ready for the early start at 6·30 a.m., and the hot sun,—for in this latitude the mid-day sun *is* hot,—did not hinder those whose duty it was to measure or sketch in the open air from doing their parts thoroughly. The description of the buildings visited may be properly reserved for a future opportunity; but it may be well to mention that two buildings in particular appeared to command the greatest admiration, namely, Trois Palis,—a small but interesting parish church, perfectly authentic and untouched,—in very bad repair it must be allowed, and one grieves to think what must soon happen; and St. Michel, a very remarkable octagon building, reminding one of the baptistery at Parma, with seven apsidal chapels and one wagon-vaulted entrance. This, however, has not the charm of complete authenticity, having recently been restored; still, the leading masses and some of the original detail remain, and it formed a very interesting *finale* to the day's work.

OLD BROMPTON.

IN our last gossip of Old Brompton, now South Kensington,* we spoke of standing by Methwold's Almshouses, and we would yet linger upon this spot for awhile to contemplate the extraordinary transformation. The parish boundary-post lay prostrate among the stumps of the old trees which, with the litter of boughs, bricks and mortar, and scaffold-boards, made a strange commingling when we viewed the site some time since; and one of the trees yet stands close by the newly-erected church which serves to identify the locality. In imagination we must remove the mansions of the Queen's-road, and reduce the breadth of it to the narrow lane, which at this point ran in a tolerably straight line till it terminated in the Gloucester-road, immediately opposite Victoria-grove. Underneath that group of lime-trees, at the corner of Cromwell-row, we trace its course past the pollard elms to the wicket-gate of Dunn's garden, where you might gather your strawberries for the small fee of sixpence. It was here, among the elms and the limes and the thick underwood, that the nightingale sweetly warbled in the soft spring night, and where, in the field adjacent, the wheat or barley was sprouting soon to assume its golden hue, with its garniture of poppies and field flowers. While contemplating the remarkable change the sounds of a piano fluctuated on the still air. Pleasantly enough fell ever and anon the strain, but it was not the melody we had heard there before. Even the Swedish nightingale, who often broke the stillness of Old Brompton with her charming notes, would admit that art can never rival even if it may approach nature.

But to resume our survey. Leaving the buildings of Hale House on the right, not forgetting the grass field, with the big walnut-tree, where the cows grazed, and passing up the shady Cromwell-row, we come to the five-barred gate, with the words, "No thoroughfare," and at the angle and junction with the Gloucester-road stood Gloucester Lodge. Built on the site of the Florida Tea-gardens for the Duchess of Gloucester, it was subsequently tenanted by the Princess Sophia, and afterwards by the Hon. George Canning, who was visited here by Queen Caroline. In the great statesman the Queen doubtless found an estimable adviser and an earnest friend. Sometime before 1851 the place had become deserted, and the groves tangled and neglected wildernesses. The house had the questionable character of being haunted, for the doors would slam of themselves, and the creaking of weird steps might be heard in the corridors by the affrighted nightwatchers. In fact, that active, restless, and malevolent spirit (dry-rot) had taken possession, as it does of many an old domicile, from one end to the other. The premises were pulled down in 1852. This residence, surrounded as it was by a thickly-wooded grove, formed a principal feature in the view of Old Brompton from the north-west. Standing on the slightly elevated ground at the corner of Victoria-grove, then (1850) but recently built, the range of panoramic view, backed by the undulating Surrey hills, formed a most agreeable picture.

The eye ranged from Brompton Church on the extreme left, to Colherne House at Earl's-court and the more distant towers of Walham-green Church; and Chelsea Church stood a little to the left of the centre of the picture, whilst all the middle distance was broken by occasional old buildings interspersed with foliage in the most picturesque manner, the russet and grey tones of the former mingling most harmoniously with every tint that may be found in the woodland.

But when twilight fell upon the scene and distance became increased by the "sinuous veil," the proximity to the town could scarcely be realised. It was lonely enough in the night season. We remember an anecdote related by an old gentleman who for some time was the private secretary of Mr. Wilberforce. Passing daily to and fro between Kensington-gore and Old Brompton he was sufficiently used to the loneliness of the Gore-lane to feel no alarm generally. From some circumstance or other which had recently taken place he felt unusually apprehensive, and on a dark and unfavourable night for the pedestrian carried home with him the cavalry sword which he occasionally used in his military exercises. The darkness of the night appeared to increase after leaving the old tenements at the Kensington end, and as he emerged into that portion of it which skirted the carpet-ground on one side and Mr. Kirke's nurseries on the other, he heard footsteps approaching him in the opposite direction; then as suddenly stop. Upon his halting the footsteps again approached, then again stopped, and so on, until, worked up to concert-pitch of alarm, he suddenly drew the sabre. This was enough; the "swish" from the steel scabbard solved the problem at once. A sudden rush through the hedge into the carpet-ground, and a scamper which seemed to mock pursuit, indicated that the alarm had been at least equally shared.

This Gore-lane entered the Old Brompton-road immediately opposite Thurloe-place, and all trace of it is now lost in the present Exhibition-road. Finding ourselves at this point, and close to the South Kensington Station, we pause to look at the rapidly-increasing mass of building on the site of Brompton Hall.

The enclosure at Onslow-gardens recalls something of the pleasantness of old, but in the extraordinary increase of the surrounding property we can scarcely identify the old sites. Yet in passing into Onslow-square we recognise some old friends in those elms of beautiful form and growth which still ornament its enclosure, and whose venerable appearance call to mind the time when Brompton had its Heath. In this enclosure we also find a portion of the fine avenue which formerly extended from the grounds of Cowper House to the Fulham-road, where it terminated opposite Hollis-place.

It was a few yards to the westward of this residence that a small row of houses were built about 1834–35, known as Sussex-terrace, and at this period it was considered a somewhat hazardous, if not doubtful, speculation, so little dreamt of was that change in the value of the land which ultimately turned the locality into a vast and populous suburb. At this period Bute House and grounds were in existence, where the aloe in blossom brought visitors from London, about the year 1838–9. The grounds adjoined those of Brompton Hall, and Bute-street arose on the site of this property. From the windows of the houses westward of this a very extensive view was obtained over Kensington, whose church might be seen in the rising grounds among the trees, after the eye had wandered over the rural little vale beneath. The Swan Tavern has but very recently disappeared, and its bowling-green and alcoves are now lost in the Queen's-road. It was opposite this tavern where we remember to have seen a little cottage at that time retaining the name of Heath Cottage. The old farmhouse, which at this point lay back from the road, and of which the aforesaid cottage formed a part and parcel, had been removed some years previously. The whole of this site has been converted into a handsome square, under the wand of Mr. Freake.

We pass on to that portion of the neighbourhood where the late Alfred Bunn received his dramatic guests, and where the "Swedish Nightingale" warbled her melodies, where the acacias and the willow overarched the road, at a time when Old Brompton might be fairly named as a secluded spot and the haunt of the Muses.

A little distance hence, and at the corner of the lane opposite Drayton-terrace, lived for some time William Jerdan, the editor of the *Literary Gazette*. In an old-fashioned house, overshadowed by a huge elm, the growth of two centuries, one of the most useful men at that time in connexion with the press, he carried on his literary labours. It was here that he first became acquainted with the fragmental poesy of "L. E. L.," then a young girl, whose genius was of too brilliant a nature to escape the vigilant eye of the pains-taking editor, who first brought her verse into estimation through the medium of his journal. But at this date the Brompton-road was a purely country-road, and remained so for many years subsequently. Less than forty years since the site of Drayton-terrace and Drayton-grove were unbuilt on. Thistle-grove terminated the building from the Fulham-road hither, and we remember an old friend who used to say that the adjacent field was never without a hare, and that he had often from his window in the morning counted six brace of partridges rise from "Boltons," now the site of scores of residences and St. Mary's Church. This site was not disturbed for building purposes until 1850–51, when the speculation was considered so uncertain in its results that some of the houses in Boltons were sold for 1,350*l.* each,—houses which have since brought 3,000*l.* apiece and more. Even at this time, however, that thick double edge which fenced in the market-grounds of the late Robert Gunter, Esq., remained undisturbed; and not till within the last five years or so had any change taken place, when lo! the wand of Midas touched the soil, and up rose mansions in the place of cabbages.

Even to Colherne House (the extent of our present ramble) has spread the great suburb; and where of old we have stood catching the southerly breeze as it swept over the meads, spreading out to Walham Green, we find fine houses, a couple of churches, and the busy population of a town.

* See p. 731, *ante*.

THE THREATENED DESTRUCTION OF CÆSAR'S CAMP, WIMBLEDON.

IT is to be feared that unless prompt and immediate action be taken, the injunction which was recently obtained on application to the Master of the Rolls to prevent building materials from being carted across a certain road on Wimbledon-common to the "Camp," will be practically unavailing. It appears that the parties who claim the right to build on the Camp have succeeded in getting the materials laid down on the spot by taking some other route, for it seems that at the present time building operations are actively in progress, the foundations of several houses having already been laid on the south side of the Camp, and the superstructures of the same have been commenced. In addition to this, steps are also being taken for building on the north side, workmen being employed in excavating the ground, and felling the trees, preparatory to the commencement of actual building. In order to save the Camp, as a part of the common, and which it is alleged has been illegally taken possession of, it is suggested that the same course should be adopted which was recently successfully pursued with reference to Epping Forest, but if any steps are to be taken, it is manifest that action must be prompt and immediate. The right of the persons claiming to build is decidedly questioned by those acquainted with the subject, and a meeting of the parishioners is contemplated. It is also stated that in case the parties claiming the right to build should establish such claim, the amount necessary to buy up such rights, and so preserve the camp, would be readily forthcoming, so anxious are the wealthy inhabitants of the district to secure the preservation of this historical spot. A very few weeks, or even days, must, however, determine the question whether the "Camp" is to remain, or to be a thing of the past.

The Ordnance Survey. — Major-General Cameron, R.E., C.B., has been appointed Director of the Ordnance Survey of Great Britain and Ireland. He has been for many years engaged on this important duty, and has honourably earned the respect and esteem of his colleagues and subordinates.

NEW BUILDINGS FOR POOR-LAW ADMINISTRATION.

Highgate.—Mr. H. Saxon Snell estimates the cost of the new infirmary at Highgate for the Holborn Union, and for which he has prepared the plans, at about 60*l.* per bed for 566 patients, equal to 33,960*l.*

Newington.—At the last meeting of the St. Saviour's (Southwark) Guardians, held on the 26th ult., the assistant clerk submitted plans which had been sent in by Mr. H. Jarvis, architect, showing the additions and alterations necessary at the Newington Workhouse, in order to meet the requirements of the Local Government Board with regard to the proper classification of the in-door paupers of the union. From these plans it appeared that the architect considers that the best course under the circumstances will be to run a corridor through the centre of the workhouse and the present board-room, and to erect wards at the front and back of the same. In this way the expense which would be entailed by the erection of an additional block to the present buildings would be saved. Mr. Jarvis also proposes to erect in front of the establishment, and completely isolated from the workhouse, a board-room, with waiting-room, committee-room, and office. As Mr. Jarvis was not in attendance, the Board deferred the consideration of the plans.

Lambeth.—The contract for the erection of the new Lambeth Workhouse Infirmary, to which we have referred in the last two numbers of the *Builder*, is at length settled. At the meeting of the Lambeth Guardians on the 25th ult., the committee appointed to inquire into the tenders for erecting the new infirmary and other buildings brought up a report recommending that, Mr. Tarrant having withdrawn, the tender of Mr. James Taylor, which was the next lowest, be accepted. The amounts of this tender were: 50,000*l.* for the new infirmary, 1,000*l.* for the out-door labour buildings, 2,600*l.* for the receiving wards, the total being 53,600*l.* The committee also recommended that Mr. Gladwell, who acted as clerk of the works for the present workhouse, when in course of erection three or four years ago from plans by Messrs. Parris & Aldwinckle, be appointed clerk of works for the new infirmary, of which Mr. F. H. Fowler is the architect. The report was adopted.

KIRKCALDY FINE ART ASSOCIATION.

THE fourth annual exhibition of this association has just been opened, and promises to be even a greater success than last year's, while the quality of the works exhibited is better than ever. In all about 340 works are exhibited, among the most notable being those by W. Fettes Douglas, R.S.A.; J. C. Wintour, A.R.S.A.; Peter Macnab; C. E. Johnson; J. B. M'Donald, A.R.S.A.; John Smart, A.R.S.A.; Arthur Perigal, R.S.A.; H. M'Culloch, R.S.A.; James Cassie, A.R.S.A.; W. Beattie Brown, A.R.S.A.; Geo. Reid, A.R.S.A.; W. E. Lockhart, A.R.S.A.; Kenneth Macleay, R.S.A.; Waller H. Paton, R.S.A.; R. T. Ross, R.S.A.; Clark Stanton, A.R.S.A.; Sam Bough, R.S.A.; J. C. Noble; Geo. Aikman; C. N. Woolnoth, &c. In addition to this, the committee have been fortunate in procuring (on loan from Mr. J. Boyd Kinnear) two early examples of Sir David Wilkie. Local art is also well represented, especially in sculpture. The want of a proper exhibition-room is very much felt, and until it can be found the committee cannot possibly do full justice to the contributors or fully develop the usefulness of the association.

THE ASSESSMENT OF ST. THOMAS'S HOSPITAL.

THE Assessment Committee of the Lambeth Vestry have just reduced the assessment of St. Thomas's Hospital from 10,900*l.* to 7,000*l.*, being a reduction of 3,900*l.* The assessment has been reduced after the amount at which the hospital should be assessed had been settled in the Law Courts, and the reduction by the Assessment Committee has been the subject of a warm discussion in the Vestry. Several members contended that had good house property been erected on the site of the hospital, the amount of the rateable value would have been far in excess of what the hospital was rated at before this reduction took place, and Mr. Turner, one of the members, observed, that before the embankment was made, and any alteration took place, when the "old shanties" which the hospital had displaced were in existence, the place was rated to the parish at 8,000*l.* Mr. Akerman defended the action of the Assessment Committee, and stated that the number of the inhabitants of Lambeth who had received relief from the hospital in various ways, who would otherwise have had to be assisted by the parish, was very considerable. The vestry should bear in mind that there was a noble building at no cost to the parish; and although the assessment had been reduced, it was still rated at more than was the case when the old houses were in its place. He deprecated the notion of the vestry wishing to make a profit out of the hospital. Mr. Turner questioned the legality of the meeting of the Assessment Committee at which the reduction was agreed upon, and intimating his intention of causing another meeting to be called, to rescind the resolution of the previous meeting, but the clerk stated that the meeting was perfectly legal, and that the reduction must now be regarded as final.

ACCIDENTS.

AN inquest was held on the 26th ult. at the General Hospital, Birmingham, on the body of Isaac Wesbury, aged 31, painter, Vincent-place, Vincent-street. The deceased was engaged on the previous Monday afternoon painting a house in Sheep-street, when he fell off the ladder and fractured his skull. He was removed to the hospital, where he died in an hour after his admission. Verdict, "Accidental death."——On the 26th ult. a man named Richard Miles, employed by Mr. Avard, contractor, Maidstone, was severely injured by a circular-saw which he was attending.——A foreman mason in the employment of the Shotts Iron Company, named George Lamb, aged 39, has been instantly killed by a fall in the engine-house of the Shotts Iron Works, by which his skull was fractured.——A somewhat alarming scaffold accident occurred on Wednesday, the 25th ult., at Priestfield Colliery, Blantyre, occupied by W. S. Dixon (Limited), whereby four men,—namely, John M'Alpine and Robert Black, bricklayers, along with James Brown and Michael Cairns, sinkers, all of Blantyre,—were precipitated from a scaffold on which they were working in a new air-shaft to No. 5 pit, to the bottom, a distance of about 30 ft. M'Alpine got two of his ribs broken on the right side, and his right arm bruised. Brown's right ankle and right arm were injured, and he was also slightly cut about the head. Black and Cairns' injuries were so slight that they were able to walk home. William Simkin, who was also on the scaffold when it gave way, managed to cling to the bell-rope, and thus escaped injury of any kind.——By the fall of a wall in Dunlop-street, Glasgow, on the 21st ult., a child, two years old, named John Kerr, was killed, and several persons were seriously injured. The accident is attributed to the pressure of a quantity of sand heaped up alongside the wall, and it seems that a load had just been emptied when the wall fell.

WATER-TIGHT PONDS.

FOR the information of your correspondent, "R. S. W." in your last issue, may I briefly describe how perfectly water-tight ponds are constructed in the China clay-works of Devon and Cornwall? The sides of the pond, or "*settling-pit*,"—usually round,—are built up with stone and *moss*, in short, are "dry walls," with the joints stopped with moss. The wall, as it rises, is "backed up" with 2 or 3 ft. of coarse *sand*, the bottom is treated similarly, and then the clay stream is turned in. Of course, there is leakage at first, but it *very soon ceases*; sufficient clay being carried back with the leaking water to form a natural and practically impervious cement with the sand. This is now the universal method adopted, with entirely satisfactory results, which have not been obtained where cement was used.

If "R. S. W." applied any modification of this plan he would find it successful. The settling-pits above referred to are equally tight with clear water, after they have been used for the clay a few times.

FELDSPAR.

THE writer of the question has not said what was the substratum to his concrete, nor how he allowed the concrete to dry. Perhaps too much lime was used in his concrete, which would allow the water to filter through it.

If clay, such as pottery is made of, is handy, he can coat the pond bottom 2 in. deep with it, or cement will be the only other remedy.

Allow me to remark that in forming ponds, clay will hold water, but sand, chalk, gravel, or peat require claying, even if concrete be used after as a top coat. Do not let the concrete dry by quick evaporation of moisture, or it becomes porous; but keep it wetted for a few days, to dry slowly throughout, and avoid anything breaking the set of the concrete, such as a plank end dropping on it, or it will be a leaky place.

J. CHARLES KING.

COMPETITIONS.

The Laird Memorial Statue.—We referred in last week's *Builder* (p. 785) to the models sent in in competition for the bronze statue of the late Mr. John Laird, M.P. We understand that the Committee of Selection have chosen the design of Mr. Albert Bruce Joy, of London, and that Mr. Joy has been entrusted with the execution of the work. There were seventeen designs submitted in competition. Mr. Joy was a pupil of Foley. The statue will be 10 ft. high, and will be placed on a pedestal 13 ft. high.

The Proposed New French Postage Stamp.—Four hundred and thirty-one designs for the new French postage stamp have been sent in. Of these, twenty-five were selected and reserved for final examination. The design which obtained the first prize of 1,500 francs represents Peace and Commerce leaning on a terrestrial globe with an equatorial band, whereon the words "République Française" appear. The second prize design represents Abundance supported by a shield. The third design shows France, as a nude figure, holding a flambeau to light the world. On all the prize drawings the words "République Française," and the price of the postage, are inscribed.

ST. SEPULCHRE'S CHURCH.

SIR,—Perusing the account of St. Sepulchre's Church and its restoration (by the architect) in your number of August 21, errors occur which I will endeavour to correct, and also supply a little additional information. To begin, the income of our esteemed vicar is put at 200*l.* per annum. This is not so; if it were, there is scarcely a parishioner who would not gladly contribute to supplement such a miserable pittance. With regard to the substitution of an oriel window for the niche and statue of Sir John Popham, it did not rest with the churchwardens alone: the entire restoration is entrusted to a committee of twelve, including those officers and the vicar. What the artistic merits of the statue that was to have vied with those already on the Viaduct might have been, it is impossible to say; but the window was the more costly, as the substitution caused an addition of some pounds to the contract.

Concerning the London and Middlesex Archæological Society, some of its members being also parishioners, they naturally felt interested in the interior restoration of their noble parish church. The Council paid a visit of several hours' duration, and afterwards, at their own expense, sent a report, accompanied by drawings, to the Restoration Committee, as a private and friendly communication. The remarks about their "orthodox functions and incapacity" are wholly uncalled for. I regret to add that, unknown to the vicar and senior churchwarden, an unfair use was subsequently made of the Society's report and drawings.

Few enter our church without admiring its fine, lofty interior. There is not the remotest intention of sacrificing it for Gothic. With the galleries removed, the useless lobby and St. Stephen's Chapel thrown in, we shall have no mean approach to the grandeur of a cathedral. The design for the tower and porch was (very unwisely) accepted by the Restoration Committee without competition. For the interior, three architects sent in designs. Those of an eminent firm have been selected, and from their large experience in building new churches and restoring old ones, a successful result may be anticipated.

As to the work just completed, though more ornamental, it is, in my opinion, less imposing than formerly, whilst the absence of string-courses in so lofty a tower, windows minus the usual sloping sills, the window-like clock canopy, and heavy tracery in the porch windows, are much to be regretted.

T. J. W.,
One of the Restoration Committee.

Proposed Widening of Goswell-road.—At a meeting of the Clerkenwell Vestry, on the 26th ult., Mr. Gillingwater suggested that, as a number of houses between Percival-street and Compton-street had been pulled down, to clear the site for the erection of large blocks of workmen's tenements by the Improved Industrial Dwellings Company, a good opportunity was offered to widen Goswell-road at that part. He hoped the vestry would put itself in communication with the Metropolitan Board, in order that the new buildings which are to be erected might be set back from the old line of frontage. He moved that the matter be referred to the Committee of Works. The motion was adopted.

TEWKESBURY ABBEY CHURCH.

MR. THOMAS BLASHILL, in his paper on Tewkesbury Abbey, read at the recent Congress of the British Archæological Association, said,—The history of this church, now nearly all that remains of a noble monastery, begins with the end of the eleventh century, or perhaps the commencement of the twelfth. For some 400 years before that time a small establishment of monks had existed here, at first as an independent foundation, but subsequently as a dependency of the Benedictine Monastery of Cranbourn. About the year 1084, Geraldus, the abbot of Cranbourn, came here and began the construction of a more important establishment, and three years later, in 1087, the Honour of Gloucester (of which the Lordship of Tewkesbury formed a part) having been given by William Rufus to Robert Fitz-Hamon, his relation in blood and by marriage, he appears to have at once promoted the idea of the abbot. Thus the monastery progressed until the church was completed, the chief bulk of which remains in its original condition to this day. A monk named Alfred was the "master of the works." If we may read this as "architect," it is an early and rare mention of such a person by name. In 1102 the monastic buildings were fit for occupation, and Tewkesbury became, instead of Cranbourn, the residence of the abbot and his monks,—they being fifty-seven in all, as given in the charter. In 1107, Robert Fitz-Hamon, the "second founder" of Tewkesbury, died, and was buried in the Chapter House, the church not being completed. Leaving daughters only, Mabel, the eldest, was married to Robert, a natural son of Henry I., who was created Earl of Gloucester, and is known in history as the champion of his half-sister, the Empress Maud, in her struggles against King Stephen of Blois. Earl Robert carried on the buildings, and the church was consecrated in 1123, being then probably completed except as to the tower, which would occupy a few years more. We may infer this much from the general severity of design throughout the church, the archaic character of such ornament as does exist, and the greater richness of the upper stages of the tower. A wooden spire, covered with lead, is said to have been built by Earl Robert before his death in 1147, but whether this was the one which fell on Easter Day, 1559, may be doubted. The church then comprised the nave and aisles, divided by tall and massive circular columns; over them was a very simple and insignificant range of coupled arches in place of the triforium usually adopted, and a clearstory, of which we can fairly estimate that it carried a wooden roof at the height of, perhaps, as much as 10 ft. above the soffit of the present vaulted ceiling. A similar arrangement to this was adopted at Pershore and at Gloucester, but here it is carried to an extreme, the height of these columns being 30 ft., which is 3 ft. more than those in the nave at Gloucester, the diameter of these being about 6 in. less. The original intention of the designer of the western façade is a puzzle which cannot easily be solved. The western façades of large churches of early date are, perhaps, their least satisfactory point. This is the first and almost the only case where an immense arch was formed so as to gain an importance which could not be otherwise obtained. It seems to have been actually filled in with a wall pierced with windows, but I cannot think this was the original idea. Such a wall set back for a few feet behind the arch, and a pair of western towers, of which the rudiments seem to exist here, would have produced a magnificent effect, as may be judged from the west fronts of Lincoln and Peterborough, where experiments of this kind were tried, but there is no evidence of the recessed wall in this case. The towers were not actually built, a mere turret being carried up over each of the side staircases,—the present terminations to them, including the highest window openings, being evidently a modern imitation of twelfth-century work. Dingley's sketch of the church shows the tops of these turrets crocketed like those on the angles of the central tower. There is a fine north porch corresponding in date with the church; by it the townsfolk had access to the nave, which was their parish church. It has a dark room over it accessible only from a narrow wall gallery. The stone seats in the porch are said to be, and probably are, portions of the ancient slab of the high altar, but no dedication crosses can be traced upon them. The aisles, like the nave, had wooden roofs, and not the half-barrel vault which has been inferred from the existence of the half-arches thrown across them to act as buttresses to the central tower. The transept was exceedingly severe in design. It had the usual apsidal chapels in its eastern face, and the church was completed to the east with a very short choir, or rather presbytery, consisting of only two arches beyond the tower, and an apse which is not semi-octagonal, as is usually said; but semi-hexagonal, an unusual but a more convenient form. Over the arches of the presbytery were the usual triforium and clearstory. An ambulatory was formed round the presbytery; it also may have been semi-hexagonal, and no doubt had three small apsidal chapels. From the floor of the church a fine view of the interior of the tower could be had, showing two tiers of arched openings and a tier of windows above them, throwing light down into the church. Traces of the twelfth-century monastic buildings of important size are found on the southern face of the church. In the south-eastern angle of the transept is the turret stair, by which for over 400 years the monks descended direct from their dormitory to the early morning services, their choir being between the two arms of the transept, and under the central tower. Such was the church as left by Earl Robert of Gloucester at his death in 1147. Earl William, his son, did nothing to it, for nothing needed to be done, so complete and solid was the work. In 1178 the monastic buildings were burnt, and traces of this fire are plainly visible on the adjoining walls of the church, but no remains that I have seen show the characteristic work of Henry II.'s reign, which would be the style of the new buildings if any were then erected. In 1183 Earl William died, and leaving no son, the husbands of two out of his three daughters were successively Earls of Gloucester. Our associate, Mr. Planché, Somerset Herald, has recently shown that the first of these was Prince John, who had married Isabella, and became King of England; then followed Almeric de Montford, the husband of Mabel, and Geoffrey Mandeville, the second husband of Isabella, after her divorce from King John. On the death of this last in 1216, Gilbert de Clare Earl of Hertford, the son of Earl William's other daughter Amice, became Earl of Gloucester.

According to Mr. Planché (see *British Archæological Association Journal*, 1870), the Clares would be Lords of Tewkesbury from 1216 for a period of ninety-eight years. They adopted this as their place of burial, and lie side by side between the two westernmost arches of the choir—the first Gilbert and his son Richard, then Gilbert the second (the Red Earl) and his son, Gilbert, the last Earl of Gloucester and Hertford, who at the age of twenty-three was killed while leading the fatal charge of the English horse at Bannockburn, in 1314. The work that required to be done here during the time of the Clares was not very considerable, but it was important, and we can see from its mutilated remains that it was carried out in the richest and most elegant manner of the thirteenth century, towards the middle of the reign of Henry III. I venture to think that the nature of the work then done has been misunderstood by all the historians of the abbey. The ancient Register, known as the "Annals of Tewkesbury," gives but a meagre account of the buildings executed. It records that in 1219 Abbot Peter built the dormitory and back offices, which work has been destroyed. Also, that in 1237 Prior Sipton rebuilt the chapel of St. Nicholas, and this is assumed to have been the work done on the site of the old apsidal chapel on the east side of the north transept. But the most important work of this period was a building which extended along the north face of the transept, and beyond it as far as the eastern face of the chapel last named. This building has been thought to be the two chapels of St. James (or of St. Nicholas) and of St. Eustache. It consisted, in fact, of a chapel to the east, approached through a large ante-chapel, the two forming a beautiful model of a small church, having a nave and chancel. I can find no reason for the dedication of such an important building to any of the saints to whom it has been ascribed, but I think that a close examination will clearly indicate the motive for building it, and the cause of its peculiar form. During the twelfth century, the interest of the laity in the public worship of the church had greatly increased, and the enthusiasm of both clergy and laity in honour of the Virgin Mary was vastly augmented. The small eastern lady chapels became inadequate to the increased demand for this means of worship. In those churches where the eastern termination was apsidal there was some difficulty in constructing a large lady chapel, and if the church was monastic the laity could not gain access to a lady chapel so placed without some interference with the portion of it kept apart for the use of the monks. Although these two objections were in several instances overcome, they are set forth very neatly in the case of Durham, where a chapel to Our Lady having been begun at the apsidal east end, the walls began to crack, from which it was inferred that St. Cuthbert objected to anything which would bring women so close to his shrine. The chapel, which is called the Galilee, was therefore built at the western end of the cathedral. The most convenient position for a chapel of Our Lady which might be used by the people was on the eastern side of the transept, farthest from the monastic buildings. So it was at Worksop Priory and at the Abbey of Bury St. Edmund. It could not be so placed at Tewkesbury without destroying a chapel already existing. If that had been possible, the transept would have formed the ante-chapel, or place for the people; but as it was necessary to place it beyond the transept, an ante-chapel had to be provided, and the result is the beautiful arrangement of which we now see the mutilated remains. The "Annals" record that in 1239 "the Church of Tewkesbury was dedicated, with the major altar, in honour of the glorious Virgin Mary." Perhaps we should understand by this, not that the Church with the high altar thereof was re-dedicated, for which no reason seems to have existed, but that the church, *with the major altar to the Virgin*, was dedicated. If so, that would clearly refer to this lady chapel, for (as was the case at Bury St. Edmund's) the old eastern lady chapel would also be retained for the use of the monks. We are greatly indebted to Messrs. Collins & Cullis, the contractors, who have very kindly made such excavations as were necessary to clear up doubtful points in this investigation, and to Mr. Collins for great personal trouble in the matter. I am much inclined to think that the Chapel of St. Eustatius, built by Prior Henry de Banbury, in 1246, was built between the eastern part of the new lady chapel and the north aisle of the choir, including the site of the old apsidal chapel. If so, it would be entered by the ancient archway of that chapel, now blocked up. In that case the chapel of St. Nicholas must have been one of the small chapels in the ambulatory of the choir. But so many changes have evidently taken place at that spot that further investigation is desirable.

This, then, was the condition of the church when the last male of the line of De Clare was buried here in 1314. Seven years afterwards his eldest sister, Eleanor, was married to Hugh le Despenser the younger, the favourite of Edward II., who was created Earl of Gloucester, and had the Tewkesbury lordship, and the patronage of the Abbey. The Despensers were here till 1414, a period of ninety-three years. In five years this Hugh was hanged at Hereford, with a wreath of nettles round his head, for his attachment to his sovereign. His body was dealt with in the extreme of the barbarous fashion of that age, such parts of it as could be collected being buried to the south of the high altar. I am hardly prepared to admit that the monument which exists there at the back of the sedilia is his memorial. His son, Hugh, Baron Despenser, died in 1449, and his widow (who was a Montacute) married Sir Guy de Brien. She and her first husband, Hugh Despenser, lie buried under the handsome monument to the north of the high altar, which is the first that can be identified of the series of grand historical memorials for which this church is famous. The monument facing this on the other side of the ambulatory is attributed to Sir Guy de Brien, who survived his wife for nearly thirty years, dying in 1490. The extensive works done to the church in the time of the Despensers are attributed to the three persons just named, especially the last. Sir Guy de Brien was a person of considerable position, having his own residence at Castle Welwyn, in Pembrokeshire, being a Knight of the Garter, and constantly engaged in the service of the sovereign. He was, as might be expected, one of the benefactors of the church, leaving to it some property at Bristol, for the support of certain of its services, but why he, whose connexion with Tewkesbury was so short, and, as it seems, so slight, should do so much for it, and should even be buried here, requires to be better explained. I can now only endeavour to elucidate the history of the works undertaken about this time, and as they present considerable

difficulties to the archæologist, careful attention to their details will be necessary. For some reason it was now determined to greatly increase the magnificence of the buildings and the number of altars in the ambulatory of the choir. The increasing wealth of the community, derived chiefly from the benefactions of the Lords of Tewkesbury, would sufficiently account for this, but I suspect that the building which I have called the new lady chapel had become dilapidated through failure of the foundation of the north wall of the transept. . . . . Of the monastic buildings the remains are slight; the great gateway is the most important, and it has been substantially repaired. The buildings adjoining it on both sides are of the latter period of Gothic architecture, and were connected with the business portion of the monastery rather than with the discipline of its inmates. We shall perhaps best conclude our inspection by lingering over the exquisite specimen of the latest phase of Gothic before its day of decline, which is seen in the north-eastern angle of the cloister, and which was thought worthy of being copied in the new Houses of Parliament, the most important modern attempt to emulate the glories of this past and once almost forgotten age. And yet we should not omit the opportunity afforded by the sight of the work now going on here of expressing our sense of the obligation which is owed by archæologists to those who are now so carefully and conscientiously carrying on the work, as well as our wishes that funds may be found for its completion in their own time, so that the grand old nave may be filled with the parishioners as of old, who will then see the ancient choir of the monks, and the further presbytery stretching far away in such a magnificent vista as few churches in England can show the like.

TRANSPORTED BRIDGES.

It may seem anomalous that bridges that are to do duty in various parts of the United Kingdom, and in the four quarters of the globe, for generations to come, should be erected first on the Isle of Dogs, on the banks of the Thames. Yet so it is. In the yard of Messrs. Westwood & Baillie, London-yard, Poplar, iron bridges have been erected that have been sent to Japan, India, La Plata, Trinidad, Mauritius, and various other countries, as many as 1,600 bridges having been thus fitted up for the Bombay, Baroda, and Central Indian Railway alone.

In the yard of this firm there is at present, quite near completion, the superstructure of a lattice girder bridge for the municipality of Calcutta, that is remarkable alike for its great strength, and for the excellence and precision of its workmanship. This bridge,—the Hastings-road,—is 174 ft. long, with a clear span of 162 ft. The lattice girders are 16 ft. deep. One pair of the diagonals, which are the same throughout, are of rolled iron bars 8 in. by 2½ in., the other pair are of bars 8 in. by 1 in.; the angle-iron bracing is 3 in., and 3 in., by ½ in. The flange of the main girders is 2 ft. 8 in. wide. The cross girders, which are 18 in. deep with 9 in. flanges, are placed at 4 ft. 4 in. between centres. They project on each outer side beyond the lattice girders 5 ft. 3 in., and 6 ft. 10 in. alternately. These projecting ends carry a footway floored with spaced planking 9 in. by 3 in. The footway is fenced by a handsome wrought-iron railing 3 ft. 8 in. high. At each alternate cross girder, with the extra projection, the railing is supported by an ornamental cast-iron standard, with a neat cap, that does duty as a sort of vertical bracket. There are about twelve tons of wrought iron in the hand-railing. The footways on each side are 5 ft. 4½ in. clear; the carriage-way, between the lattice girders, is 24 ft. 9 in. clear, and the clear headway under the three cross-ties at the top 18 ft. 6 in. The ties are a quarter-circle at the ends, and straight along the top; they are latticed along the straight part, and have plate webs at the ends, with flanges at top and bottom; they rise 3 ft. from the spring.

The roadway is formed of segmental plates, of $\frac{5}{16}$-in. iron, laid across the bridge, and riveted to the cross girders; they rise about 9 in. The haunches will be levelled up with concrete and covered with ballast. The brick piers will rest upon 6 ft. of masonry on a broad concrete foundation, and a thick cast-iron bed-plate. The bridge is designed to bear nearly three times the strain or load of a railway bridge.

On the next berth in the yard to that occupied by the Hastings-road Bridge is one of the spans of a bridge for a region that is to be soon one of the Prince of Wales's hunting-grounds. It is to cross the river Kalutura, in the island of Ceylon. It is a trussed girder, of twelve spans, 106 ft. each between centres longitudinally, and 21 ft. 10 in. between centres laterally. The girders are 11 ft. deep. The cross-girders are fish-bellied, 1 ft. 9 in. deep, and set at 5 ft. apart between centres. The web is of ¼-in iron, with top and bottom angle-irons, 3½ in. and 3½. in. by by ½ in. The girders are covered with corrugated ¼-in plates, laid longitudinally. Each plate goes over two cross-girders. These will also be levelled up with concrete and ballast. The bars of the principal girders are 12 in. by ½ in. The top and bottom plates are 20 in. wide, and trough-shaped, one plate at the ends, strengthened to three in the centre.

The bridge will rest upon cast-iron cylinders, to be filled with concrete. The cylinders are 6 ft. in diameter, and are cast in three segments. They will be joined vertically and horizontally by bolts through flanges. The piers formed by these cylinders will average about 50 ft. high. Ten thousand bolts will be used in fixing them, and about 16,000 tons of wrought and cast iron will be used in the entire bridge.

The Kalutura Viaduct will be used, in the first instance, as an ordinary roadway for carriages and horses, and, possibly, elephants and other animals, but in anticipation of its being on the line of a future extension of the railroad from Colombo, it has been designed to serve for railway traffic if required. The line is now only about twenty-five miles from the locality where the bridge is to be erected.

Another bridge in hand by this firm has not to be taken so far afield. It is for the Great Eastern Railway Company, to span the Ouse at St. Ives. Its principal feature is a bow-string girder 104 ft. long. It will have nineteen other spans of 30 ft. each. The wind-tie bracing in the principal span will all be of wrought iron. The cross-girders will be 6 ft. 8 in. apart, with rail-bearers between. The principal piers, of brick with stone caps, will be 6 ft. wide, the others about 3 ft. There will be about 400 tons of iron in the structure.

A characteristic of the bridges built by Messrs. Westwood & Baillie, it is not claimed to be a peculiarity, is that every one of the vast number of separate parts is an exact counterpart, in shape, bolt and rivet holes, and in every other respect of every other part of the same sort, the whole work being made and prepared by template.

ACTS FOR SPENDING MONEY.

Of the 257 Bills for which petitions were presented to Parliament in the recently-expired session, 189 have become Acts, exclusive of powers granted under confirmed provisional orders. Of these there are seventy-one Railway Acts, seven Tramways, thirteen for Gas and Water Supply, seventeen for Gas Supply, twenty-five for Water Supply, sixteen for Dock, Pier, and Harbour Works, eighteen for various purposes to Corporations and Local Boards, and twenty-two miscellaneous.

Among the most important railway Bills passed, in so far as extent of works and amount of additional capital to be raised are concerned, are the two Bills of the London and North-Western Company, for making fifty miles of new line, in various localities, and for raising 4,500,000*l.* sterling of additional capital in shares and loans. By the Midland Act powers are obtained to make sixteen miles twenty-five chains of new lines and other works, including a connecting line at St. Pancras, a station branch at Brixton in connexion with the London, Chatham, and Dover line, with branches between Royston and Darfield, Barnsley and Worsboro' Dale, at Burton, with other works; new capital in shares and loans 2,400,000*l.* The North-Eastern Act authorises the construction of short railways at Berwick, Newcastle, Tynemouth, and other places; proposed new capital, 1,665,000*l.* The Regent's Canal and Dock Company Act empowers the company to improve the canal and dock, to enlarge Limehouse basin, to build a river wall, to make railways to the Great Eastern Railway, and to use portions of that railway; also, to create a "Rent-Charge Stock" and a "Capital Stock A" for the purchase-money (of the Regent's Canal) of 1,390,540*l.*, and an "Ordinary Capital B" of 900,000*l.*, and to borrow 300,000*l.* The omnibus Bills of the principal railway companies are of less than their usual importance. The extent of the new works they contemplate is partly indicated by the capital powers asked for by their Bills. The Caledonian Company for various works propose to raise 88,000*l.*; the North British Company had only a very small Bill this year, additional capital 50,000*l.*; the Great Eastern have obtained an Act in which borrowing powers are not asked for. The Great Northern Company have obtained an Act to execute a number of comparatively unimportant works; new capital in shares and loan 400,000*l.* The Great Western Act authorises the construction of about 9¼ miles of line in the county of Monmouth, at Rowley Regis, and for other works; new capital 600,000*l.* The Lancashire and Yorkshire Company have obtained powers to construct various works, and to raise 666,666*l.* of additional capital. The South-Western have also an omnibus Act for various works, and powers to raise additional capital. The Cheshire Lines Committee, the Brighton, and the Chatham companies, have obtained Acts in which powers to add to their capital are not asked for. The South-Eastern Company have obtained an Act authorising the construction of 14½ miles of new lines, from Maidstone to Ashford, and at Sandgate, with powers to raise 466,000*l.* of additional capital. The Sheffield Company have obtained an Act authorising the construction of 6 miles of new line, additional capital 266,000*l.*

The largest new railway schemes sanctioned, in so far as mileage is concerned, are Irish. The Bundoran and Sligo Railway, of 20¼ miles, promoted by an independent company, capital 270,000*l.* was unfortunately thrown out in the Lords on standing orders; the Derry Central Railway, promoted by a new company, for a line of 33½ miles, capital 340,000*l.*, has passed the Parliamentary ordeal, and the "clerk of the Parliaments" has sonorously pronounced concerning it the authoritative regal formula, "La Reine le veult." The Sligo, Leitrim, and Northern Counties Railway, a new one, have obtained an Act to make 42½ miles of line, starting with the fabulously small capital of 300,000*l.*, which, even for a single line, is a remarkably low figure.

The Tramway Acts passed relate to Belfast, Glasgow, Hull, Liverpool, Middleton, and Stockton, North Dublin, and Salford.

The Gas and Water Acts relate to Inverness, Millom (Cumberland), Cardiff, Manchester, Hindley, Ashton-in-Makerfield, Broadstairs, Barrow-in-Furness, Birmingham, Pontefract, Rochdale, Widnes, &c. The Gas Acts passed refer to Alford, Bath, Carmarthen, Cleethorpes, Cleveland (Skelton), Colchester, Heckmondwike, Longton, Longwood, Marlborough, Newport (Monmouthshire), Tunbridge Wells, Worthing, &c.

The Acts for water-supply relate, in addition to those mentioned as for gas and water, to the following places, among others:—Blackburn, Busby, Chelsea, Eastbourne, Greenock, Hamilton, Kilmarnock, Leicester, Maidenhead, Market Rasen, Oldham, Osset-cum-Gawthorpe, Oxford, Pemberton, Pontypridd, Portisbead, Rotherham, Slough, South Staffordshire, Stroud, Truro, Weardale and Shildon, and Worksop.

The Dock, Pier, and Harbour Works Acts relate to,—Bristol Port and Channel Dock, Burntisland, Cork, Gravesend, Leith, London (London and St. Katherine's Docks), Lymington, Liverpool (Mersey Docks and Harbour Board), Milford, Romford (Canal), Southampton, Staffordshire and Worcestershire (canal navigation), Sutton Bridge Dock, Tees Conservancy, &c.

The miscellaneous Acts passed embrace a wide variety of subjects, including patents, charities, estates, assurance societies, roads, drainage, schools, Acts for a cemetery, an aquarium, a college, for bridges, and divers other objects.

The additional capital proposed to be raised under the Gas and Water Acts passed is comparatively small. Under the Bath Gas Bill power is given to raise 75,000*l.*, and to extend the limits of supply. The British Gaslight Company (Norwich station) is empowered to raise 100,000*l.*; the Cleveland Company, 62,500*l.*; the Commercial Gas Company (London), 562,500*l.* The Imperial Gas Company, by the Bill that they withdrew, asked for powers to raise 1,408,000*l.* of additional capital, and when the new capital has been subscribed, &c., 430,000*l.* more. The Millom Gas and Water Company have power to raise 50,000*l.*, and the Newport Company 62,500*l.* to be expended on works for the greater part. The capital to be raised for Waterworks' Bills include the following:—Barrow-in-Furness, 60,000*l.*; Blackburn, 250,000*l.*; Broadstairs, 15,000*l.*; Chelsea,

200,000*l.*; Eastbourne, 31,000*l.*; Greenock, 65,000*l.*; Leicester, 133,300*l.*; Manchester, 500,000*l.*; South Staffordshire, 250,000*l.*; Stroud, 90,000*l.*; Truro, 20,000*l.*; Weardale and Shildon, 750,000*l.*, &c. In a majority of the cases referred to, the additional capital will be expended upon new works.

The number of local Acts passed is below the average of the past five years, and the contests have been, with a few exceptions, fewer and less protracted and determined.

ENSEMBLE.

BY force of circumstances an architect is frequently compelled to adopt a certain standard, and his work should be judged accordingly. This is a rule too often lost sight of, and the critic is apt to take it for granted that the designer has had everything his own way, whilst he has been reluctantly forced into doing what, of his own accord, he would not have done. At the same time, it may be remarked that a man possessed of originality and force of character will, in whatever circumstances, stamp his work with his own individuality, and that he who is deficient in these qualities yields too readily to any obstacle in his way.

It is too often overlooked that the chief merit in architecture consists of beauty of form; elaboration is mistaken for beauty, whereas greater elegance and taste are more generally found in a plain building than in one profusely detailed. No amount of elaboration will make an ill-proportioned building otherwise than ugly, although, if judiciously applied, it will enhance the value of good proportion. Ornament ought to be considered a luxury, which is to be used sparingly, and not lavishly expended. To fritter away the principal masses with elaborate detail is inimical to grandeur and repose. In every case the ornament should be placed in subordination; "wherever the eye can rest, there place your ornament." By its delicacy it should enhance and give additional value to broad surfaces, upon which mainly depend the strength of the structure. A rectangular surface, for example, appears larger when bordered by a narrow frame. The narrowness of the mouldings, by contrast, enhance the breadth of the surface, the eye is arrested, and does not wander away from the confined space as it otherwise would be disposed to do. Hence the value of simple mouldings as ornamental features.

"The highest finishing is labour in vain, unless there be at the same time preserved a breadth of light and shadow," says Sir Joshua Reynolds; and if this be true of painting, much more so is it of architecture. The degree of finish should correspond to the size of the ornament; if it is large it should be broadly treated, if small, with delicacy. Exaggeration of parts is, however, to be carefully avoided, for when any member or feature of a building is increased beyond its due proportions, grotesqueness or deformity is sure to be the result. The proportions of natural objects used as architectural details are often exceeded, and necessarily so, as they must be in proportion to the other features, and conventionalised so as to produce the desired effect; for as the perceptive powers do not increase in proportion to the size of the object regarded, it is necessary, when the scale is increased, to simplify the details, and accentuate the leading lines. This conventionality of treatment should be kept up throughout when once adopted, so as to avoid confusion by the presence of different standards in the same design.

On the other hand, by reducing a grand design below a certain scale, a toylike effect is produced and the taste is offended. The elements of a fine building consist of grouping and contrast, or depth of light and shade; without these, grandeur is impossible, and the use or abuse of these will be found to constitute the true test of excellence in every building, ancient or modern. Grouping consists in arranging the masses of a building so as to produce an effective composition; and light and shade is produced by contrasting the masses so as to give to each its due effect, and generally by bringing into prominence the bearing members required in construction.

If a building, then, is well proportioned, gracefully grouped, and effective in light and shade, it possesses the requisites of good architecture, however plain it is. And yet, withal, it may not be a fine building in the truest sense of the word. There is a certain individuality, originality, call it what you will (that no originality is displayed in modern works we cannot admit), without which the charm is wanting. It is doubtless of advantage to promulgate general rules and axioms, but the mere observance of these is not all sufficient. The architect has other things to consider besides proportion, grouping, and chiaroscuro. The success of his work depends as much upon expression as does the work of the painter, and no rules can be laid down for such—the power to give it must be inborn with the man, a part of his nature.

Every landscape-painter is aware of how much a scene may be made or marred by a building. If judiciously placed and in good keeping, it may be the centre-point of the composition; an object which renders the scene more attractive than before; but, on the other hand, it may be so placed, and of such a character, as to spoil the finest of landscapes. Travellers to the Highlands at this season, in passing Stirling, may observe a striking example of this kind. Upon a wooded crag, situated in a picturesque amphitheatre of hills, is placed a brobdignagian tower, in imitation of a keep. This monument, which is erected to commemorate Wallace, the national hero, is of such size and obtrusiveness as to spoil a most beautiful landscape. On a less dominating site this erection might have formed a picturesque addition to the spot; it is an eyesore where it now stands.

So, too, in street architecture, the surroundings of a proposed structure are matter of grave consideration. Style is not so much to be considered as the leading lines, which should all tend to one result,—not always to mathematical exactness, but to harmony and gracefulness of composition. One of the most beautiful groups of buildings in the world is that of St. Mark's Place, Venice. Yet the buildings are very various as regards style, and are not symmetrically arranged. It is not given to any one architect to produce such a result, but he may contribute towards it, or he may render its ultimate fulfilment impossible. The last comer may spoil the whole. An architect, then, should have the eye of an artist and the imagination to conceive of the possibilities and probabilities of the situation. He should aim at producing picturesque combinations rather than in obtruding his own work upon the observation. It is this obtrusiveness and self-assertion in most modern work which destroys the general effect upon which a group of buildings depends. Each new comer strives to outbid his predecessors, irrespective of other considerations, and, after all, the result is generally unsatisfactory. Even as regards the building itself, its height may be out of all proportion to its breadth, or the façade overloaded with staring details, and the spectator, if possessed with good taste, looks upon it with disgust rather than with admiration.

In designing a building for an isolated position, there is not the same temptation to self-assertion and obtrusiveness as where other architectural works are in juxtaposition. Still there are many instances to the contrary besides the Wallace Monument above referred to. Not only is that structure too large, but the general conception is essentially bad for the position, which was previously fixed upon. Its leading lines are perpendicular, and enter into competition with the surrounding hills, a feeling which is still further suggested by the tower being surmounted by a serrated crown. The Greek temples so situated never seem out of harmony with the surroundings, their low horizontal lines and simplicity of contour do not come into competition with the undulating lines and aspiring summits of the hills, but contrast with and add value to them.

The Gothic cathedrals and churches are also admirably fitted for their situations,—it is upon the plains that we find the lofty spire, as at Salisbury, and upon the heights the massive and less aspiring tower, as at Lincoln, and so was it elsewhere. If a spire was the culminating feature of a Gothic church situated upon a height, it was where no work of nature came into competition with it, and even then the leading lines of the composition were carried out, as at St. Michael's Mount.

It is not enough, therefore, that a building should be beautiful as an architectural design simply, but its masses, leading lines, and details should be so arranged as to be in harmony with the surroundings, and produce an effective *ensemble*.

Royal Architectural Museum. — The Council of this Museum have abolished the entrance fee of 6d., and now admit persons free daily between ten and four.

THE ANGLICAN CHURCH IN ZANZIBAR.

OUR readers may be glad to know that the Protestant church which is in course of erection from the designs of Mr. C. Forster Hayward, F.S.A., in Zanzibar, under the auspices of the Central African Mission, is making satisfactory progress. Bishop Steere, in a recent letter says:—

"The church in the Slave Market grows apace, and is the subject of much attention to both Europeans and natives. I hope we shall make it a really noble building. We are spending at present about 100*l.* per month on the building; it is already much admired and wondered at by the townspeople; the native masons are getting proud of their work, and so are taking more and more pains. Our school and preaching go on in the room adjoining, and I get very attentive congregations in spite of a vigorous effort of the leading Arabs to keep the people away. The Sultan is said to have warned his friends not to come near us; and one of the learned men in the town who is a great friend of mine told me that the Sultan asked him, 'how he, a teacher of their own, could go to hear the Gospel expounded;' and that he replied, 'the Gospel was good and right, and therefore it could not be wrong to listen to it.'"

In opposition to this we are glad to hear from Mr. Hayward that the Sultan accepted a set of plans from him personally, and said his "Thank you," very distinctly.

DEATH OF MR. H. H. VALE, F.R.I.B.A., OF LIVERPOOL.

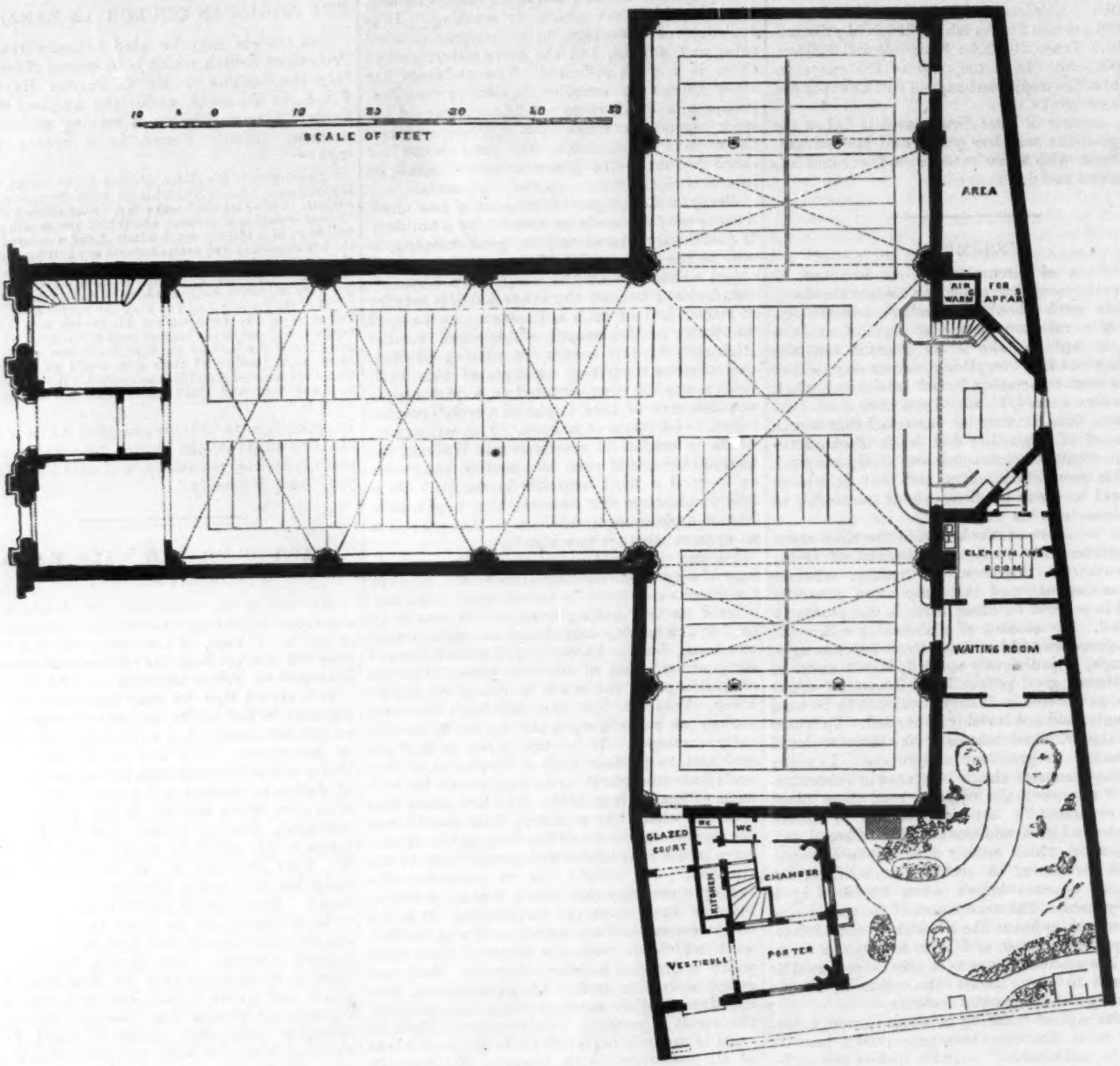
WE regret to announce the death, under somewhat mysterious and painful circumstances, of Mr. H. H. Vale, of Liverpool, who was found drowned in a pit near his residence at Fairfield, Liverpool, on Friday morning, the 27th ult.

It is stated that for some time past Mr. Vale has been in bad health, and as a consequence, or an accompaniment, has exhibited a strangeness of demeanour. This was chiefly shown in an indisposition to see visitors, and a general feeling of dislike to business and society. On Thursday afternoon, while walking in the grounds of his residence, Stanley House, Oakhill Park, Old Swan, a lady called to inquire as to his health. Mr. Vale left her to be entertained by his daughter, and going into the house went upstairs. Immediately afterwards, however, he went out again, and as some time passed without his returning, the members of his household became alarmed. This feeling was deepened upon its being found that Mr. Vale had left his watch and guard behind him, and that a vial containing laudanum was missing. Search was instantly made, and continued until Friday morning, when his body was found at half-past nine o'clock in a pond behind his residence. The missing vial was found empty in his pocket, and the presumption is that after taking the laudanum Mr. Vale threw himself into the pond. The water in which the body was found was about 8 ft. deep. In conjunction with Mr. Sherlock, Mr. Vale designed the Walker Art Gallery, of which we gave a view, and was a past President of the Liverpool Architectural Society.

Amongst Mr. Vale's other works in Liverpool and the neighbourhood are the Oxford and Cambridge-chambers, the Young Men's Christian Association Hall, Mount Pleasant (now in course of erection), and many churches. Mr. Vale's kindly disposition and affable manners made him many friends, by whom his death, under such melancholy circumstances, will be greatly regretted.

At the inquest which has been held upon the body of the deceased, it was stated in evidence that for the past two months he had been in very bad health, and had not been to his office for about three weeks. Dr. Haywood, his medical attendant, considered that he suffered from an over-wrought brain. The jury returned a verdict to the effect that deceased committed suicide by drowning himself while in a state of unsound mind.

Memorial of the late Earl of Hardwicke.—It is proposed to re-erect the grand Early English tower of Haddenham Church, near Ely, to the memory of the late Earl of Hardwicke, as recommended some time ago by the present Bishop of Winchester. The site chosen for this monument is on the highest point of the Isle of Ely, and the tower, when completed, will form a prominent landmark. It was originally erected about A.D. 1272, and many of its principal features were carefully preserved when it was found necessary to take it down some time ago in consequence of its ruinous and unsafe condition.



THE CHURCH "DE L'ÉTOILE," PARIS.——*Plan.*

EVANGELICAL CHURCH DE L'ÉTOILE, PARIS.

THE façade of the Evangelical Church of l'Étoile, in the Avenue de la Grand Armée, has been recently completed. It is 22 mètres in height, by 11·50 in width; the first design was 25 mètres in height by 12·50 in width, but the architect was obliged to lessen it, from motives of economy. The style partakes both of the fifteenth and sixteenth centuries, seen through French eyes, and the façade is entirely constructed in freestone.

The gablets of the two side entrances are supported by the apocalyptical symbols of the four evangelists,—the angel, the eagle, the ox, and the lion; the great moulding of the principal entrance is carved with a garland of wheat and vine leaves, typifying the communion; two angels support the gablet of the centre portion, the one bearing the motto,—"God is love," and the other,—"Peace be with you."

If the dimensions of the façade leave something to be desired, the interior dimensions gain by contrast. The nave is 38·50 mètres in length and 10 wide, the transept 30 mètres in length and 10 in width, forming a Latin cross; the whole, including the organ gallery above the principal entrance, furnishing seat room for 1,400 persons.

The walls of the building being intended to serve eventually as party-walls to neighbouring constructions, windows were inadmissible in some parts, and have been replaced in the interior design by wall arches, forming spaces for inscriptions from the Bible.

The cost, which was determined beforehand, not permitting the construction of galleries in the transepts, the latter have been built so that the galleries can be added afterwards, if thought necessary, giving 200 seats in addition, and raising the total of sittings to 1,600.

The vaults of the choir are blue, with a gilt star powdering, and in the three windows of the same portion are placed stained-glass designs representing the birth, death, and resurrection of Christ; the rest of the windows are filled with diaper-work in grisaille.

A second entry is made on the side next the Rue Poisson, by the sacristan's lodge, and through a garden into the porter's entrance-lobby. The garden is intended as the site of a Sunday-school to be ultimately built.

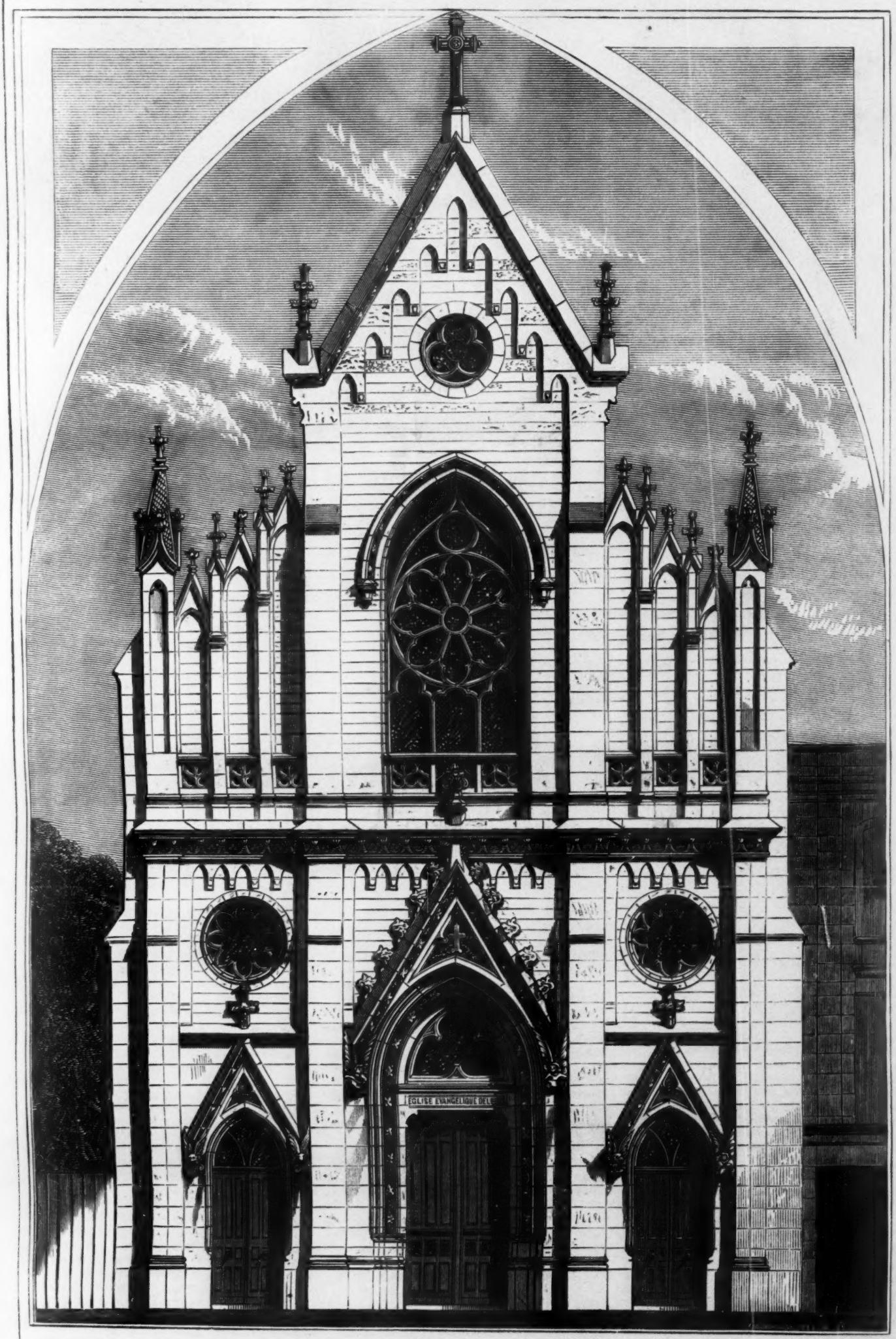
The cost has been about 190,000 francs,—a very moderate sum, considering the surface of ground covered, and that the foundations had to be taken to a depth of 9 mètres. The collection of the necessary funds has been entirely owing to the exertions of the minister, M. le Pasteur Berrier, who has for a long time past found the existing chapel far too small for his congregation.

M. W. Hansen, of Paris, is the architect.

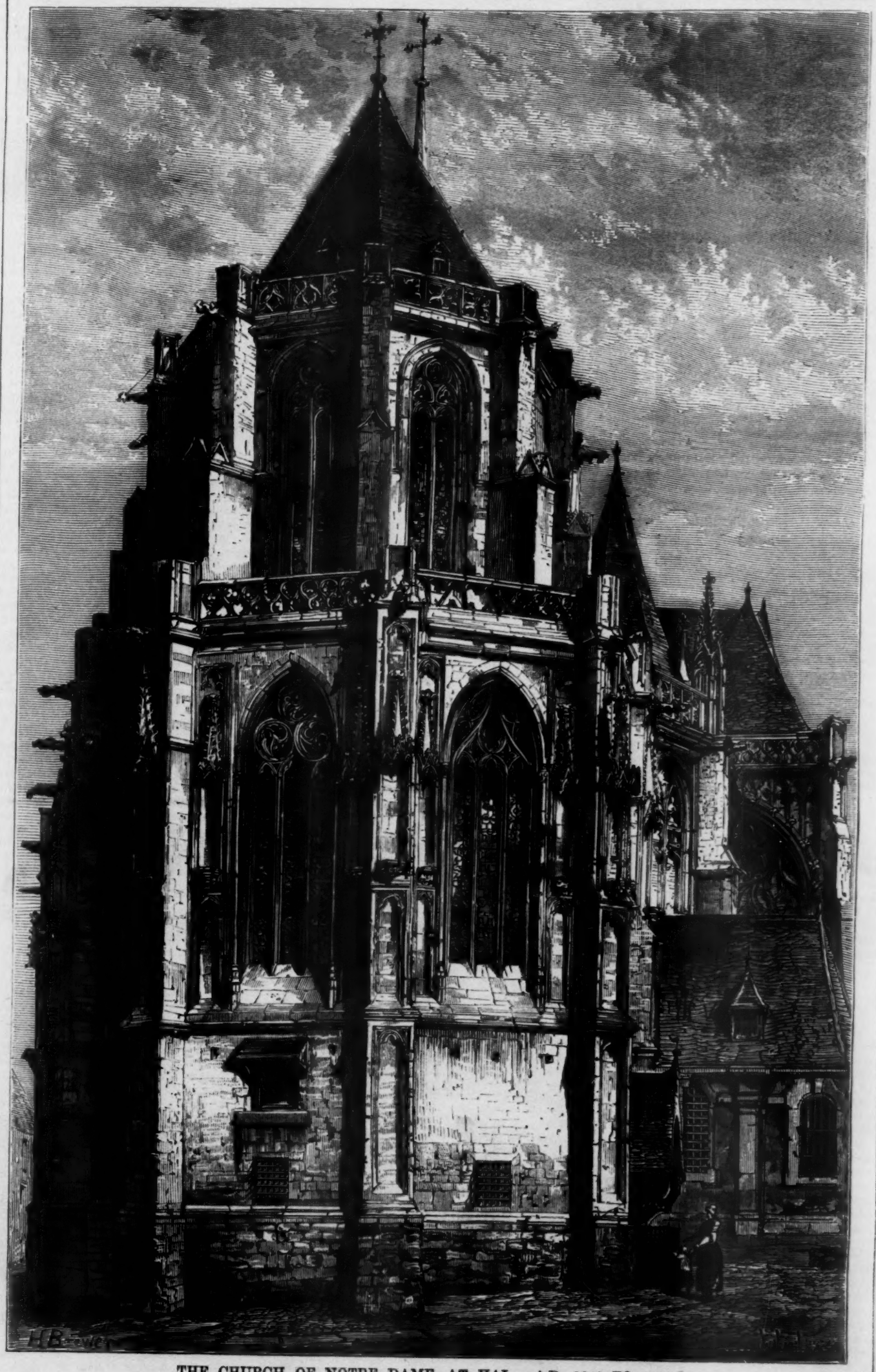
THE GERMAN SANITARY CONGRESS.

THE following subjects will be discussed at the third meeting of the German Sanitary Association, to be held at Munich on September 13, 14, and 15:—1. The determination of a plan for the investigation of the occurrence, as to place and time, of epidemics of typhus: reporter, Professor von Pettenkofer, Munich; co-reporter, staff-surgeon, Dr. Port, Munich. 2. Hygienic requirements of new buildings, especially in the new quarters of large towns: reporter, Dr. Varrentrapp, Frankfort; co-reporter, engineer Bürkli-Ziegler, Zurich. 3. The demands of public health in relation to food, in orphan asylums, barracks, prisons, and almshouses for old persons, and also in public kitchens: reporter Professor Voit, Munich. 4. The aims, means, and limits of sanitary police control over certain important articles of food, especially bread and meat: reporter, Dr. Heusner, Barmen. 5. Public slaughter-houses, and the introduction of a general regulation of the slaughtering of animals; also the compulsory examination of meat, with special reference to the obligation of the district authorities to recompense the butchers: reporter, Herr Gobbin, Görlitz; co-reporter, Dr. P. Börner, Berlin. 6. The formation of a general registration of deaths in Germany, with, if possible, medical certificates of the causes of death.

The Tay Bridge.—On the 26th ult. the first of a series of fourteen piers to support the large central spans of the Tay Bridge was safely launched and towed out to the middle of the river, where it was moored, as the weather was too stormy to permit of its being satisfactorily lowered into position. This is the largest pier yet constructed. The next pier will be ready for launching in a week or two. Sixty-four piers have now been sunk, and only twenty-five more have to be added to complete the bridge, the total number being eighty-nine.



THE EVANGELICAL CHURCH "DE L'ÉTOILE," PARIS.——M. Hansen, Architect.



THE CHURCH OF NOTRE DAME, AT HAL. A.D. 1341 TO 1409.

NOTRE DAME AT HAL.

THE Church of Notre Dame at Hal, about twelve miles from Brussels, although not a very large building, is a singularly beautiful and valuable example of the perfected Gothic of the fourteenth century. The church consists of a nave and aisles, western tower, with an octagonal baptistery at the west end of the south aisle, and a chancel with aisles of the same width as those of the nave, of which it is in other respects a continuation. There is a large chapel opening out of the north aisle of the choir, and two porches, one of which, that on the south side, is a very elaborate and splendid example of late fourteenth-century work. The aisles of the chancel are not carried the whole length, but end in chapels at the second bay from the chancel arch. The chancel terminates to the east, with an apse of remarkable beauty. It is two stories in height, the upper one being a continuation of the clearstory. In place of aisles there are internally deep arched recesses, filling up the spaces between the buttresses.

Internally, the church is singularly rich and elaborate, the whole of the walls above the arches being covered with tracery, and in the choir elaborate arcades of open tracery are carried in front of the clearstory windows. The church is singularly rich in furniture. The ancient rood is still in existence, supported upon a beam with excessively elaborate pierced tracery. The high altar is a remarkably-beautiful example of very Early Renaissance work, adorned with charming bas-reliefs in white alabaster; at the back is a singular vaulted loft for the exposition of relics, which is at present concealed by a hideous reredos, an example of the very worst taste of the last century. In the centre of the choir is a fine old eagle lectern of brass, and there are some good Mediæval candlesticks, and a remarkably fine corona of iron richly decorated. The font is of brass, ornamented with statues and canopies, and has a lever of iron, to lift off the cover, which is ornamented with a statue of St. John the Baptist. This font is somewhat similar to one we illustrated some time back in the cathedral at Bois-le-Duc in Holland. There is an ancient lectern of iron in the baptistery, and the screen is a good example of workmanship executed in the same metal. There is a "Pieta" carved in stone near to the west doorway; it is the work of the fifteenth century; but perhaps the finest things in the church are the "wind porches," these, which are generally such very ugly features, are here singularly beautiful. They are in the Early Renaissance style, and are ornamented with panels, filled with very delicately-carved arabesques and foliage, niches, statuettes, masks, &c., all carved in oak, most highly and delicately finished. This fine and interesting church was commenced in the year 1341 and completed in 1409.

THE DISCOVERIES AT CLEEVE ABBEY.

SOMERSETSHIRE ARCHÆOLOGICAL SOCIETY.

THE twenty-seventh annual meeting of the Somersetshire Archæological and Natural History Society has been held at Frome. The Earl of Cork and Orrery, as president, delivered a valuable address, which is reported, together with other proceedings of the Society, in the *Bath Chronicle*. In the course of the meeting,

Mr Danby Seymour read the following observations on the recent discoveries made at Cleeve Abbey by Mr. C. H. Samson, of Dunster:—"I accompanied the Rev. Mackenzie Walcott, Precentor of Chichester, to these interesting ruins, for the purpose of making a plan of what he considered to be the remains of the church, which until now has been a matter of doubt to many who have visited the spot and written upon the subject. The owner of the property, G. F. Luttrell, Esq., of Dunster Castle, who takes the keenest interest in the matter, at once placed a gang of labourers at our disposal, and in a short time the most important parts of the foundations of walls and columns were exposed to view. I send with this communication a plan of the whole of the buildings, both ecclesiastical and domestic, and the following explanation, taken principally from the notes of Mr. Walcott. The church was 161 ft. in length, of the purest Cistercian type, consisting of a nave of five bays, with aisles 100 ft. by 58 ft. 6 in., a central tower, a transept of 95 ft. by 40 ft., with two eastern chapels, 13 ft. 6 in. square, in each wing, and a short eastern presbytery, 29 ft. by 17 ft., without aisles. The pillars of the nave were round; a beautifully moulded base nearly perfect was discovered in place, and, like the rest of the stonework found, there was no trace whatever to be seen on the surface of the ground of what lay beneath; here and there were indications of masonry, but on examination they only proved to be masses of fallen walls; portions of three other bases were found in their places. The aisles were 11 ft. wide, and the central alley 30 ft. A portion of the foundations can be seen on which the stalls and rood screen stood; the space enclosed is 14 ft. by 12 ft. 6 in., and is partly covered with encaustic tiles, evidently on the proper floor level, although not as they were originally laid: a portion of this space is under a huge piece of fallen wall. A large quantity of encaustic tile paving has been found, either dug up out of the earth or built into modern walls; there seem to be as many as fifty different patterns,—heraldic, geometric, and others, in various colours,—black, red and white, and glazed green; many of the same patterns were found in the old chancel of Dunster church. Among the heraldic tiles are the arms of Raleigh, Clare, Pointz, Trevet or Treble, Sydenham, Bardolf, Cary, Beauchamp, Fitz Nicholas, Furneaux, Peverill, Palton, Boteler, and Richard Earl of Cornwall, many of whom had lands in the county, and under the Mohun family; some of the tiles bear capital letters, B, C, T, I, O, M. The walls of the south aisle of nave remain, with traces of the two processional doors, and three windows about 4 ft. wide between the inside splays, and about 14 ft. from the floor level; they are at present walled up, and no traces of the outer faces are visible. The west and south walls of the transept also are standing, with a portion of an eastern aisle chapel 13 ft. 6 in. square, with part of a piscina, remains of a stoup, and the foundations of the altar; there are remains of clearstory windows in the south wing. The western jamb of the eastern cloister door remains, with a portion of the outer arch, and the springer of the inner arch. The south wall of transept shows the central door into the sacristy. The cloistral and domestic buildings have already been the subject of an elaborate paper by the late Rev. F. Warre. I need, therefore, merely describe the subsequent discoveries made while clearing out some of the rubbish which has accumulated during the time the buildings were used as a farm homestead, which is now happily no longer the case; in a short time Mr. Luttrell intends to remove the modern walling, and other unsightly innovations, now no more needed for cattle sheds. On the east side of the cloister garth, which is 78 ft. square, is the dormitory, on the upper story; it is a magnificent room, 137 ft. 6 in. by 24 ft. 5 in. The north wall contains the door opening on the night stairs to the transept, and a skew door probably for watching the church lights. The substructure includes—(1) the sacristy, 22 ft. 4 in. by 12 ft., with a round window, the hood moulding only remaining; a large double aumbry in the west wall, which had shelves and wooden doors; an aumbry and water-drain on the south, and to the north another locker, and the door into the transept. (2) A chamber, 22 ft. by 10 ft. 6 in., lighted by a single lancet; the original large entrance arch has been filled in with one of smaller dimensions. (3) The chapter-house, vaulted in two spans, on which traces of wall painting are visible; the foundations of the eastern end are now laid bare, which shows the whole building to have been 46 ft. 10 in. in length, by 21 ft. 4 in. in width. (4) Day stairs to dormitory. (5) Parlour 16 ft. 11 in. by 11 ft. 7 in., lighted by a double lancet window, and having a locker on the north, and a deep recessed arch at the side of the door. (6) The slype to the cemetery, 29 ft. 8 in., with two double aumbries in the north, and a pair with a door in the south wall, opening into the (7) day or common room, 60 ft. by 22 ft. 6 in. It was vaulted in two spans, with a central arcade resting upon three pillars. In the east and west walls, at the south end, are two doorways, opposite to each other. The original floor-level is several feet deeper than the present; the doorways are at least 7 ft. high. The south side of the garth is principally occupied by the refectory, over an Early English substructure, which includes (1) the tresaunt to the conventual garden, 30 ft. 8 in., by less 3 in., with a south door and loop and bench where the porter of the cloister sat. (2) The calefactory, divided into three chambers, the first, 22 ft. 8 in. by 8 ft., contains a window, with seats, and a garderobe. The central compartment, 22 ft. 2 in. by 15 ft. 4 in., is entered by its special door, and also by a skew-door, pierced in the partition-wall, on the west, and adjoining the entrance to the next chamber, 22 ft. 2 in. by 16 ft. 5 in. Each of these two divisions has a fireplace set between two windows. Mr. Walcott's impression is that, in the changes of the Perpendicular period the original day-room, being divided into bays by woodwork screens, and this room, originally a long cellarage, had their destinations interchanged. At the south-west corner there is a door, opening into a passage, 6 ft. 6 in. wide, under the hall-stairs, which contains a window and garderobe. Next is the (3) entry to the abbot's kitchen, with a door opening on the hall-stairs, and having a corresponding door opposite to it. Outside the refectory-stairs are traces of a large porch, with a gabled front over the door, and a second building, forming a serving-room, with a five-light window, of timberwork, which connected it with the conventual kitchen. The western alley of the cloister shows a buttressed front, with an upper range of chambers, occupied by the converts or lay brothers, much mutilated. It is pierced by a gateway-porch, with woodwork, retaining some carving on the south, and a panelled Perpendicular arch on the north. Southward of it is the conventual kitchen, 33 ft. 11 in. by 13 ft. 6 in. The arches which enclosed its window remain. They resemble the west side, which were filled with Perpendicular windows, of four lights, and portions of this tracery remain. These four bays formed carols for study. At the south end is a straining arch. The north alley has been entirely swept away. In the centre of the south wall of the nave is a trefoil-headed seat, for the abbot or claustral prior, in cloister time.

CASTLEFORD AND WHITWOOD MAIN DRAINAGE COMPETITION.

ON Thursday, the 26th of August, a meeting of the local boards of Castleford and Whitwood was held for the purpose of deciding upon the first and second best schemes for the joint drainage of the two districts. Twelve schemes had been submitted, with estimates varying from 7,000*l.* to 29,000*l.* These had been considered at different meetings and reduced to two, which were to be decided upon. The Boards, after a short consultation, awarded the first premium (100*l.*) to the plans sent in under the motto of "Union," and the second (50*l.*) to the plans sent in under the motto "Experience." The authors of the successful designs are Messrs. Malcolm Paterson, of Dewsbury, and Mr. Wm. Wheater, of Leeds; the authors of the second being Messrs. Brierley & Holt, of Blackburn.

The position of the two districts at the confluence of the rivers Aire and Calder, with a large extent of flat alluvial land, renders them difficult of drainage. The scheme adopted comprises two separate intercepting sewers, storage tank, two pumping stations, and thirteen acres of land for treatment of sewage by intermittent filtration. The estimate for these works is 22,684*l.* The present population of the two districts of Castleford and Whitwood is 12,000, with a ratio of increase estimated at 100 per cent. in fifteen years.

THE WHITELAW TESTIMONIAL FOUNTAIN AT COATBRIDGE.

A HANDSOME fountain in commemoration of the many valuable services rendered to the inhabitants of Coatbridge by Mr. Alex. Whitelaw, M.P., has been formally inaugurated by Col. Buchanan. The fountain has cost between 2,000*l.* and 3,000*l.*, and so liberally have the inhabitants responded to the appeal made to them, that after paying that amount there was a sufficient balance on hand to pay for two marble busts of Mr. and Mrs. Whitelaw, from the studio of Mr. Ewing, of Glasgow, and also to defray the expense of making a square about the fountain to be called the Baird-square, in honour of a wealthy relative of Mr. Whitelaw, and who is the head of the firm to which he belongs. The testimonial fountain itself is built of Aberdeen and Peterhead granite, and is erected from designs by Mr. Hugh H. McClure, architect, Glasgow, the granite work having been executed by Messrs. Milne & Wishart, Aberdeen. The pedestal is placed on a basement of two well-elevated steps, which lead up on four sides to an equal number of red granite drinking-basins. The pedestal, which is about 10 ft. square, is raised on a floor or platform to a height of 12 ft. above the level of the street. The pedestal is ornamented with rusticated corners and raised

enrichments, having on each face the head of a lion, the water flowing from the mouth into the drinking-basin below. There are four large tablets above the lions' heads which contain the inscriptions. Surmounting these is an arched canopy supported on four massive red granite columns, having moulded bases and finely-carved capitals; both the arch and cornicing over the canopy are enriched with carved key-stones and cantilevers. An octagon blocking course rises above this entablature over which is carried a pear-shaped dome, enriched with massive and handsomely-carved red granite vases. The height of the whole erection, from the level of the street to the top of the vase is 38 ft. The following is the inscription on the fountain:—"Erected by subscription in honour of Alex. Whitelaw, esq., M.P., in recognition of the many valuable services rendered by him to the community. Inaugurated 10th August, 1875."

SUGGESTIONS FOR THE BETTER CONSTRUCTION OF DWELLING-HOUSES.*

THE subsoil of every area intended for the erection of dwelling-houses thereon, should be properly drained before the buildings are begun.

If the soil be clay, it should be burnt, and a layer laid down to improve the drainage, and purify foul waters.

The entire site of every dwelling-house should be covered with concrete, Portland cement, or other impermeable material.

The footings of every house should stand upon concrete.

Every wall should have a damp-proof course of slate, asphalte, or otherwise.

No staircase should be less than 3 ft. wide, with proper openings for ventilation, and should be always external to the rooms.

No habitable room should be less than 9 ft. in height, or less than 150 ft. superficial area. It should be provided with a window at least 16 square feet in size, and a fireplace.

Every room in a basement, having an external wall and provided with a window and fireplace, should have an open area from 6 in. below the flooring along the whole length of the external wall, and at least 4 ft. wide. The ceiling of such room should be at least two-thirds of the height of the room above the top of the area wall, or surface of pavement of street. The surface of the said area should be covered with cement concrete.

Every house intended for human habitation, unless every room can be lighted and ventilated from a street or open space, should have an open space in the rear thereof, of at least 150 square feet in area, and never less than 10 ft. in width in any part. Such space to belong exclusively to the house.

All block buildings, meaning thereby, buildings intended for the occupation of numerous families, and more than 25 ft. wide in their largest frontage, should have staircases and passages external to the walls of the house, to provide ready escape in case of fire, and to prevent the spread of disease.

A suite of rooms in such houses intended for the occupation of a separate family should have no communication with other rooms; and each suite of rooms should be entered directly from the street or outer staircase. The houses and rooms should be so arranged that through ventilation is secured.

In the case of block buildings, at least half of the superficial area should be left open for ventilation, and a space of at least 30 ft. in depth should be left between the wall of each block, or of one block and of any other house, back and front.

The water-closet, or other contrivance for the like purpose, should be always detached from the house, or so situated that there should be space for a current of air between the house and the closet.

The water-supply for drinking, cooking, &c., should be separate from the supply to the closet, and should be constant.

No house-drain should be carried under the basement of a house, but have a fall to a sewer in the rear.

The inverts of sewers should be made of Portland cement or of other impermeable substance.

In all new neighbourhoods the paving of the roads and foot pavements should be completed before the houses are permitted to be occupied.

No new house should be allowed to be occupied without a certificate from a Medical Officer of Health or a surveyor, that the regulations have been complied with, and that it is fit for human habitation.

* By George Ross, M.D., Medical Officer of Health for St. Giles' District.

A PROCESS FOR PERMANENTLY PRESERVING IRON FROM RUST (OR OXIDATION).

DR. WM. H. STERLING is making known his system for preserving the entire structure of iron. He says:—

"The nature of my invention consists in the impregnation and saturation of the structure of the metal, iron, with a *non*-oxidising or *non*-oxidisable substance or substances by means of forcing these *non*-oxidising or *non*-oxidisable substances into the intercellular or interstitial spaces of the metal by suitable pressure while the iron is in a properly heated and expanded condition, induced by heating the iron in a vacuum, or in a simple chamber, as hereinafter described."

As this invention is capable of being variously mechanically applied, as the different forms of iron articles to be preserved, and the non-oxidisable substances used may require, it is not necessary to describe all of the various mechanical means which can be used in its application; he therefore gives only one of the methods by which his invention may be applied, and which he recommends as being eminently practical and useful:—

"A vessel of iron, or any suitable material of sufficient strength, is made in the form and size best adapted to the shape and dimensions of the iron article to be treated, with the lid so constructed that the vessel may be closed hermetically, and at the bottom suitable pipes are arranged for conveying steam and water, alternately, for the purpose of heating and cooling the interior, as hereinafter described."

Suitably connected with this vessel is a power pump or forcing apparatus for producing the necessary pressure, also the proper appliances for obtaining a vacuum. The iron to be treated is now heated to the desired temperature, as hereinafter stated, and placed into the above vessel, the top closed hermetically, and dry or superheated steam turned into the above-described pipes at the bottom, to keep the metal at the required temperature; also, at the same time, an atmospheric vacuum is produced by an ordinary air-pump connected with the chamber; the proper quantity, sufficient to fill the vessel, of pure parafine or parafine in solution with one of the pure heavy mineral oils, having been also previously heated to the required temperature, is now let into this chamber and forced, under the proper pressure from the forcing pump, into the intercellular or interstitial spaces of the iron, those spaces having so greatly enlarged by the expansion of the metal from the heat and removal of the atmospheric pressure as to most readily admit the subtle, penetrating *non*-oxidisable hydro-carbon preservative in sufficient quantity to for ever after protect the entire structure of the iron from oxidation or rust by any of the ordinary corrosive or oxidising elements. When the iron has remained under this liquid pressure a sufficient time, it is gradually cooled by turning cold water instead of steam into the pipes, the pressure being kept up, however, until the iron is cool.

Certain qualities of iron may be treated without the atmospheric vacuum, but as the iron expands very much more and greater pressure is obtainable by its employment, and the additional cost not to be considered, he recommends its use as most desirable.

We do not know to what extent the value of the process has been proved by time.

THE YORKSHIRE ARCHÆOLOGICAL AND TOPOGRAPHICAL ASSOCIATION AT BEVERLEY.

THIS Association held its ninth annual excursion on Friday, the 27th ult., Beverley being the *locale*. At half-past one o'clock the Association was officially received by the ex-mayor (Mr. Silvester) and corporation. The charters and other muniments of the borough were exhibited, together with objects of antiquity found in the district, and illustrative of the prehistoric, Celtic, Roman, and Mediæval periods. These were arranged by Mr. W. Stephenson, of Beverley, and included, amongst others, the corporation maces, two silver chains formerly belonging to the borough, and the silver chain of the "Ancient Company or Fraternity of Minstralls in Beverley," a guild which is said to have extended from the Trent to the Tweed, and which had its head-quarters in this town and borough. The reception being concluded, a visit was paid to

St. Mary's Church.—Mr. Fairless Barber, after describing the chief architectural features of the church, made some observations on the works of restoration now in progress. He said the members present all knew, and had the greatest respect for, Sir Gilbert Scott, under whose direction the restoration was being carried out; but it could not be denied that, in the present instance, Sir Gilbert had materially altered the character of that church. He did not wish to say a word against the method he was pursuing in doing it; but he merely wished to draw attention to the fact that the fabric was being materially altered. The effect, no doubt, would be exceedingly pleasant to the people of Beverley, but there was a distinct alteration in the line and the form of the church. He had no doubt there might be reasons for it, and there might be some particular wishes of the inhabitants of Beverley which Sir Gilbert Scott would be bound to carry out; but at the same time there was a distinct departure from the original form of the fabric. He thought it was their duty to call attention to circumstances of this kind, and he hoped the people of Beverley would make it clear to everybody who visited the building that it was in an altered condition, so that no unwary stranger might be misled to think he was in a church arranged as it was when the original fabric was built.

On leaving the church the company proceeded to the Norwood Rooms for luncheon, at the conclusion of which they visited

The Minster.—Mr. Fairless Barber again acted as *cicerone*, and pointed out the varieties of style in the architecture of the building. The Lancet, or Early English style, he said, was as pure and as beautiful an example of Gothic work as could be found anywhere. The other work was equally beautiful and pure in its particular style. One feature in the Minster, which was not apparent at first sight, and which was only disclosed by the investigations of Mr. Petit, when the town was visited by the Archæological Institute in 1847, was that the original plan seemed to have been to stop short of the second transepts, and to have simply an ambulatory round the altar, which would stand somewhere where the present screen stands; in point of fact, that the second or eastward transept, with its chapels, was an addition to the original conception of the builders. With reference to the history of the church, there was nothing earlier than what they saw of it above ground. There was nothing whatever of any former building remaining, unless, indeed, it was the font, which appeared to be of an earlier date than anything else in the fabric. The misereres were certainly unique in the charming humour with which they illustrated the social life of the period to which they belonged. Mr. Micklethwaite, referring to the alterations which were going on in the edifice, said he hoped the old rood-screen would not be removed, for to remove or destroy it would be to obliterate an important part of the history of the church. Other portions of the minster were individually inspected, and the party returned home soon after six.

THE WATER-SUPPLY OF OLD LONDON.

THE BAYSWATER CONDUIT.

MR. GEORGE MUSGRAVE, M.A., has written an interesting letter to the *Daily News* on this subject, suggested to him by the recent discovery of the subterranean chambers beneath Oxford-street, which formed part of the system of water-supply from the far west to the centre of the metropolis. The water was derived from springs in the gravelly soil of St. John's-wood, and took the direction of Grosvenor and adjoining squares on its way to Cheapside. Mr. Musgrave says:—"I am old enough to remember the stone-built conduit house, from which Conduit-passage and Spring-street, Paddington, derive their designation. It stood in a meadow, described in an old document in my possession as situate between Paddington church (close to the present vestry hall) and the north side of Kensington-gardens; but it will be more correctly pointed out by my stating that the said old relic stood on a slanting grassy bank about 100 ft. distant from No. 4, Craven-hill, at the back of the line of dwelling-houses now bearing that name. It was erected and, up to the year 1798, and nearly

twenty-three years later, was kept up by the Corporation of London, 'to preserve a large spring of pure water which rose at the spot, and was formerly conveyed by leaden pipes (cast in Holland) to Cheapside and Cornhill.' It was one of the most ancient springs in the vicinity of London, and being situate in a manor once belonging to the Sanford family, and subsequently to the Earl of Craven, was granted to the citizens by one Gilbert Sanford in the 21st year of the reign of Henry III., A.D. 1236. Reference is made to it in Lysons's 'Middlesex,' p. 331; also in Pennant's 'London,' and Stowe's and Marshall's records. I drank of the little rivulet in the year 1804, and recollect perfectly the haystack-shaped monument overshadowing the stone pipe from which it issued, the security of which was threatened by the roots of a very old pollard elm. It exists no longer. When the Craven-hill estate was parcelled out for building purposes this stone conduit-house was pulled down, and the stream was led either into the main sewer or into the River Serpentine, which rises much further up in a north-easterly direction, and now rushes, occasionally with great impetus, under the centre of the roadway in Kensington-garden-terrace, close to my own residence, and, crossing the Bayswater-road, enters into Kensington-gardens where the fountains are. A stone tablet on the south side, exhibiting the City of London shield of arms, bears a date 1782—doubtless a period at which repairs were made. A plain stone tablet over the pointed arched door is inscribed with 'Repaired 1637.'"

THE TEES CONSERVANCY WORKS.

THE members of the Cleveland Institute of Engineers, to the number of about eighty, on Monday, the 23rd ult., had an excursion down the Tees, in compliance with an invitation from the Tees Commissioners and the Diamond Rock Boring Company, for the purpose of inspecting the blasting operations being carried on at the Eighth Buoy Scarp, a reef of rock lying right across the bed of the Tees. Steaming down the river, the various improvements effected by the commissioners were pointed out. They landed, and inspected the sea-wall of concrete, which is being formed for the purpose of protecting the breakwater towards the sea. Here Major Beaumont delivered a lecture on the Diamond Rock boring apparatus, giving an account of the various modes of removing rocks. It may be mentioned in passing that Major Beaumont's apparatus is at present being used in boring for salt in the rocky strata near to Port Clarence, on the northern side of the Tees. The buzzer from the barge announced that they were ready for blasting, upon which the party returned to the scene of operations, and witnessed the firing of the holes which had been bored. Within the time the party had left the barge until they returned—being about 3½ hours—nineteen holes had been drilled, each 7 ft. 6 in. in depth. The whole of these went off in the form of seven audible explosions. The holes were 10 ft. apart from each other, so that about 100 square feet of rock was shivered to atoms to a depth of 7 ft. 6 in. The rock thus exploded is removed by a bucket dredger, which takes the place of the barge. After witnessing the explosion the party returned to the ferry landing at Middlesbrough, whence they had started.

ST. JUDE'S CHURCH, SOUTH KENSINGTON.

ONE of the large windows in the south transept of this church, of which we gave illustrations some time ago,* has lately been filled with stained glass, the gift of a member of the congregation. It consists of six lights with elaborate tracery in the head, and contains figures of the Apostles SS. Peter, Andrew, James the Great, John, Philip, and Bartholomew. Beneath each of these is a group illustrating an incident in the Apostle's life, with an appropriate legend. Thus, St. Peter released from prison by an angel, St. Andrew going to martyrdom, the martyrdom of St. James, St. John leaning on our Lord's breast at supper, St. Philip bringing the loaves and fishes to our Lord to feed the multitude, and St. Bartholomew's prayer under the fig-tree. The figures are inclosed in a border of rich foliage broken by numerous figures of angels bearing musical instruments, censers, &c., and in the tympanum our Lord is represented seated on His Mother's knee and adored by angels. The window, which deserves praise, is from the studio of Messrs. Lavers, Barraud, & Westlake, who have four others in progress for the same church. Should the remaining transept windows be filled with stained glass at any future time, it is proposed to complete the series of Apostles on the south side and to place the Prophets on the north.

Subscriptions are being obtained to complete the tower and spire; their non-completion is somewhat of a reproach to Mr. Forrest's large and well-to-do congregation.

* See vol. xxviii., p. 547, and vol. xxix., pp. 366, 367.

EXTENSION OF THE BIRMINGHAM EXCHANGE.

OF late the accommodation afforded for the transaction of business inside the Birmingham Exchange has been found insufficient to meet the continually-increasing demand, and a great deal of business has had to be transacted in the street, much to the obstruction of the thoroughfare to the New-street Railway Station.

The Exchange, as it now stands, was erected from the designs of Mr. Edward Holmes. It has a frontage of 63 ft. towards New-street, and of 186 ft. towards Stephenson-place. The style is Gothic, partaking of a Continental character. The main front has a tower 100 ft. high over the centre to the Exchange, and end wings which rise one story above the other portion of the front.

The new building will be constructed of Hollington stone, and it is stated to be so designed as to carry on the lines of architecture of the school, and blend them by a judicious compromise, so as to make the two styles of the school and the Exchange gradually harmonise with each other. The new erection will be of the same height as the school, and will form a sort of wing to the Exchange. The designs have been prepared by Mr. J. A. Chatwin, architect, Temple-street; and the contractor is Mr. B. N. Smith, builder, of the Crescent.

A PRETTY SAMPLE OF A CHURCHYARD.

INTERFERENCE is seriously needed at Talland, West Looe, Cornwall, for, according to the statements of the Rev. H. Mayo, vicar of Talland, his churchyard is the last resting-place of over eight thousand bodies, interred in little more than half an acre of ground. The usual depth of grave is about 4½ ft., deeper graves being impracticable, owing to the friable quality of the earth, and to its being continually turned over by the sexton.

There are no spaces between the graves, and whenever a person has to be buried, the remains of others have, of necessity, to be disturbed. The gravedigger adopts a scientific plan of finding out whether he will be safe in opening any particular spot, by driving down a long iron tester to the requisite depth, and if this bar only goes through some decayed coffins and "old mortalitys," then that spot is selected by the sexton as suitable for a "new-comer," and it may be that a grandchild's bones mix with its grandmothers, or no relatives whatever.

These repeated burials have raised the soil to such an extent, that the old church is almost at the bottom of a charnel pit; and the vicar declares that the polluted atmosphere arising from the putrid dead renders the sacred edifice unfit for public service. There is, he says, constantly oozing from the graves in the higher part of the yard a horrible slime, which came on the floor of the belfry, and he is obliged to keep disinfectants and brandy for the safety of the ringers. Fresh primroses and exotics, which were gathered and placed in this delightful mausoleum, for church decoration, on Easter Sunday, were almost black in a few hours, and chemists had given their opinion that it was owing to the presence of sulphuretted hydrogen in the atmosphere in such quantities as to endanger human life. On Ash Wednesday, so fœtid was the air in the church, that the congregation was obliged to withdraw. Only last week, the vicar says, he saw a poor woman beside a newly-opened grave weeping bitterly, because the remains of one dear to her had been ruthlessly exposed.

Knowing all this abomination, the vicar of Talland called a vestry meeting of the Cornishmen of East and West Looe, and entreated of his parishioners to form a burial board; the ratepayers, however, were determined to spend no money, and defeated the vicar's proposition.

If this meet the eye of the Home Secretary, it is to be hoped he will use a Cornish refrain, and at once learn "the reason why" this horrible graveyard is not closed. Decency and public health call aloud for the removal of so great an evil.

NEW JEWISH SYNAGOGUE, BRIGHTON.

THE new synagogue in Middle-street, Brighton, is rapidly approaching completion, and will be consecrated on September 23rd, by the Rev. Dr. N. M. Adler, Chief Rabbi. The structure is in the Byzantine style, the materials employed being Chichester brick and stone. The lower portion of the front is formed of three blocks. The central block forms the principal entrance, over which are two circular-headed windows, arched with coloured bricks; and similarly built windows are inserted in each of the outer divisions. The entrance-hall, paved with coloured tiles, is immediately connected with the ground floor of the synagogue, whilst a spacious staircase, on the right-hand side, leads to the gallery and the committee-room. The ground-floor, as usual, is devoted exclusively to the male worshippers, whose seats are ranged longitudinally under the gallery; the inner area, which is covered with black and white marble, being occupied by the reading-desk, &c. At the eastern end is the sanctuary, the approach to which, reached by two white marble steps, is semicircular, and inlaid with mosaic work, the sanctuary itself being guarded by rosewood doors, the sombre tint of which is relieved by gilt beading. Scagliola columns, with capitals of carved stone, stand on both sides, supporting a block of stone, on which is inscribed, in Hebrew characters, "Know before Whom thou standest," the whole being surmounted by a fanlight of coloured glass. Above this are two windows, which will be filled with amber-tinted glass, on which, in white letters cut out with chocolate, will be the Ten Commandments. Under the galleries on each side of the sanctuary is a semi-headed window, with lapis-lazuli columns; and one portion of each will be filled with white marble, on which will be inscribed the prayer always used in Jewish synagogues for the Queen and Royal Family, one inscription being in Hebrew and the other in English. The gallery (for the ladies' use) is supported by iron pillars, painted in imitation of marble, their capitals being decorated by wreaths of acorns, figs, cacti, &c., of stamped iron, heavily gilt, each wreath being of different character. The gallery columns are of a like construction, the front of the gallery being of cedar. The windows are circular-headed, and glazed with rough plate cathedral tinted glass, arranged in geometrical design. The artificial lighting will be effected by sun-burners. The synagogue, which is estimated to cost (including site) some 12,000*l.*, will accommodate 500 persons. The ground floor and gallery each contain about 250 seats, which are of open-pew shape, fitted with lockers, and made of stained deal. The building is about 62 ft. in length, is 40 ft. wide, and about 42 ft. in height. The architect is Mr. Lainson, and the builders are Messrs. Cheesman & Co., of Brighton and Uckfield, whose foreman of the works is Mr. Hampton. A house for the minister, together with schools for boys and girls, have been erected in the rear of the principal structure. The decoration of the synagogue was undertaken by Messrs. Sendall & Son, Duke-street; the heating arrangements by Messrs. Packham & Son, Western-road; and the gas-fittings were supplied by Messrs. C. & J. Reed.

STATUE OF THE CONQUEROR AT FALAISE.

ROCHET'S statue, which, according to your paragraph of last week, is "to be erected," has really been erected in the Place de la Trinité for many years, probably since its execution, which you mention, in 1851. It may be that they are now going to give it a new site or a better pedestal.

It is worthy of notice as a rare instance of an equestrian statue in which the rider is looking to the rear, a point which occasioned some criticism in the case of Foley's statue of Lord Clyde. It is a ponderous affair, and in spite of its fine modelling (said to be founded, as regards costume, on the Bayeux tapestry) gives one the feeling that horse and man are labouring under a heavier load of flesh and accoutrements than they can well bear. THOS. BLASHILL.

THE GUINNESS TESTIMONIAL.

THE statue of the late Sir Benjamin Lee Guinness, bart., intended as a memorial of his munificence in restoring St. Patrick's Cathedral, Dublin, has now been completed and placed in the position assigned to it within the railings in front of the southern or principal entrance of the cathedral. The statue, which is the work of the late Mr. J. H. Foley, is of bronze. It represents the lamented deceased in a sitting posture. The attitude is easy and graceful, and the likeness is good. The figure, which is a little more than life-size, rests on a pedestal of Aberdeen granite. The pedestal has been erected by Messrs. Sibthorpe & Sons, of Dublin. The cost of the statue was 1,000*l.*, and of the pedestal, 100*l.*

THE NEW FOREST.

THE report of the Select Committee which was appointed in the early part of this year to inquire into and report upon the present condition of the New Forest, with especial reference to the vexed question as to the right of the Crown to resume portions of it for the purposes of plantation or enclosure, has just appeared. It forms a bulky volume of nearly 280 pages, and will be found to contain some curious antiquarian matter relating to the early history of this tract of land, which, as is well known, was desolated by William the Conqueror in order to form a royal chase, when Winchester was still occasionally a royal residence. It appears to have remained in the same wild state in which the early Norman sovereigns had left it down to the reign of Charles II., when, in order to repair the destruction of trees consequent on the licence of the civil wars, it was found necessary to plant a great supply of oak-trees, lest there should be no timber for the "wooden walls" of old England. The first resolution finally agreed upon and embodied in the report to the House is to the effect,—"That the New Forest shall remain open and unenclosed except to the extent to which it is expedient to maintain the existing right of the Crown to plant trees."

CARLISLE AND ITS DEATH-RATE.

THE *Carlisle Journal*, in a leading article on the sanitary state of the Border city, points out that the death-rate of what may be called the urban district of Carlisle during the last quarter reached the high figure of 28·4 per thousand. True, there has been an epidemic of measles, but the *Journal* cannot acquit the Urban Sanitary Authority of all blameable share in the excessive death-rate of the district; because the fever epidemic with which the Urban Sanitary Authority dallied so long still shows its black mark upon the return, and the recent fresh outbreak—happily once more reduced to small compass—seems to indicate that the stringent precautions which were for a time in force have been somewhat relaxed.

A NEW ART EXHIBITION.

THE Royal Aquarium Company at Westminster are about to invite artists to send pictures and sculptures for exhibition there, and, as inducements, they propose to offer the Society's gold medal and 100*l.* for the best oil painting exhibited; the gold medal and 50*l.* for the best water-colour drawing; and the gold medal and 50*l.* for the best statue. Other medals will also be placed at the disposal of the committee, who are to be appointed to make the awards, and 3,000*l.*, it is stated, are to be distributed amongst the season-ticket holders by a sort of art-union. It might be thought that the attractions of the institution would suffice, at all events in the first instance, to draw the public, and that the promise of prizes might be kept for a later day.

Saw-Mills in Chichester.—The saw-mills recently erected by Mr. W. Johnson on his premises in St. John-street, are now in full work, and will supply a want long felt in the neighbourhood. We understand that the machines now put down, comprising both vertical and circular saws, form but the first portion of those intended to be erected. They are driven by a powerful horizontal engine, supplied by steam from two large Cornish boilers. The machinery was put down by Mr. Buchan, of the Caledonian Ironworks, Chichester.

INJURIOUS COMPETITIONS.

SIR,—In the advertisements of competitions in the last number of the *Builder*, are two examples, more flagrant than usual, of the degradation into which the competition system is likely to fall. The first is from the Skenfrith School Board, Monmouthshire, who invite *tenders* (evidently assessing architects' brains at so much a pound) in competition from architects "to be sent to their clerk before the 3rd of September next, stating in a lump sum their charge for preparing plans and specifications," and so on. The last sentence of the advertisement says:—"The Board do not pledge themselves to accept the lowest or any *tender*." In fact, the Board want to obtain high talent at the cheapest price, and I wish they may get it. But the advertisement preceding it is perhaps worse. "To Architects. Mr. S. Brooks invites specimens of plans from the above for the erection of a modern detached villa, at Pilesthorne. Mr. S. B. does not bind himself to accept the lowest or any plans.—For full particulars, apply to Mr. Bettle, Chemist, Fore-street, Wellington, Somerset."

What is the use of talking about the dignity of the profession when a public board and a private individual evidently have such a low opinion of architects in general? Still, I fear there may be some who will respond to this "liberal" appeal from possible employers. But my principal object in writing this letter is to urge the necessity of some immediate action being taken in respect to this miserable competition system. The subject has not come within the scope of the recent Special Committee on the affairs of the Institute; but when reforms are talked about, the present is a favourable time for considering *competitions*. I should also hope ere long to see some readjustment of the scale of professional charges for such works as church reparations involving small expenditure. The remuneration of 5 per cent. for the labour involved, and the great skill and experience required to really restore an old church, is wretchedly inadequate; 10 per cent. would be nearer the mark. I should add that I am no interested party in competitions, never having had the enterprise to engage in them. EDMUND B. FERREY.

THE POPULATION OF TYNDALL'S BUILDINGS.

SIR,—In reply to Mr. Isaacs' letter on the population of Tyndall's-buildings, I frankly admit that gentleman's general arguments as to the difficulty of ascertaining the exact population of any given place, and to the variable numbers from time to time, but these circumstances do not alter the facts in question to any material extent.

The main points are that we stated the population of Tyndall's buildings to be 321, and Mr. Isaacs stated it to be 608, an excessive discrepancy.

On the 17th of August our superintendent made a night census, in accordance with Mr. Isaacs' suggestion, and he reports that he found not one more sleeping in the buildings than his weekly return shows, viz., 323 persons in nineteen houses. He adds that in Nos. 11 and 12, lodging houses for single men, where there are thirty-three beds, there were only twenty-five inmates. Our figures are thus fully confirmed.

As regards the special instance in which Mr. Isaacs cites the numbers and ages of a family (the O'Donnells) occupying the ground floor of "No. 1," this is no doubt a case of overcrowding, which it would have been better to have avoided. This family came in on the 14th of June, and misrepresented their numbers to our superintendent. We should be glad to determine the tenancy at once, but the mother being paralytic, we shall be unable to do so until time has been allowed to procure another lodging. There will be, however, no avoidable delay. I may state that there is another family in the buildings which has outgrown the accommodation, but who have been our tenants for many years. This family is, notwithstanding, under notice to quit.

These are incidents that are certain to occur in the management of this class of property, and it is this constant liability that creates the necessity for our superintendence.

Our President, Lord Shaftesbury, always manifests a lively anxiety that our instructions in respect to overcrowding should be strictly observed; and it is much to be regretted, whenever, from unexpected circumstances, his wishes cannot be carried out.

In this matter, moreover, we are subject to the supervision of the officers of the local authority, and we are at all times glad to receive notice of any case of overcrowding that may come to their knowledge. In this instance no notice has been given except in the form now adopted by Mr. Isaacs. We cannot be in any way answerable for overcrowding in Gray's-inn-road.

With respect to the general management of Tyndall's-buildings, I have much pleasure in quoting a sentence from a letter dated July 24th, and addressed to me by Dr. Gibbon, the Medical Officer of Health for the Holborn District. That gentleman says:—"I still gladly testify to the excellent sanitary administration of this court." CHARLES PAYNE, Secretary.

Society for Improving Condition of the Labouring Classes.

WHO LOOKS AFTER BEDFORD STREET?

SIR,—Permit me to inquire if there be any surveyor, parish or otherwise, in charge of Bedford-street, Covent-garden, and its neighbourhood? On Monday last holes were made in the roadway leading to Garrick-street, with the utmost complacency by a party of (probably inspired) working men; and not even a policeman appears to have been consulted thereon. They were closed towards three in the afternoon, when other holes were made in the pavement, and some of these were left unguarded, to the astonishment of other wayfarers besides myself, who nearly fell into one. Of course I am delighted to see the improvements gradually being effected in London, and will not complain when an old house, which would tumble down of its own accord, if permitted to do so, requires several months to completely demolish and dispose of to the "old clo'" portion of the building community. The dust that is thereby generated tickles and does not annoy me. But I think those who are compelled to live within earshot of the carters and nose-scent of the carts that for long hours thrice a week block every original thoroughfare to Covent-garden, have a right to complain when even the footpaths are taken from them by speculative builders, who pull down but do not rebuild, and who offer no better excuse for the fact than a huge notice-board, which informs the passers-by that premises suitable to a public company will be one day erected upon this or that site provided application be made to a certain Mr. Howard. At the corner of Bedford and Chandos-streets a hoarding has existed for at least eight months. It is placed upon the footpath so that no one can walk upon the narrow strip of stone which remains. No apology even for a building seems to be yet contemplated; and this waste piece of land, like other waste bits upon this portion of the Bedford estate, is a mere receptacle for animal and vegetable matter. Please raise your voice, Sir, against a similar state of things, and, at the same time, supplement the indignant protest lately made by "Bedford Street" in the *Times* regarding the barbarous character of London underground. W.

HEIGHT OF ROOMS.

SIR,—In reply to a letter in the *Builder*, signed "A Surveyor," regarding the power of local authorities over the heights of rooms, I beg to state the result of my experience has been quite contrary to that of "A Surveyor," as nearly all the authorities which I have known have had a by-law regulating the height of rooms intended for habitation. The authority with which I am at present connected has only been in existence a little over two years, and our by-laws, which have been duly approved and sanctioned by the Local Government Board, contain restrictions regulating the height of ceilings, and which are enforced in my district.

A SURVEYOR TO A SANITARY AUTHORITY.

*** The fact, as already stated, that by-laws for regulating the height of rooms are held to be *ultra vires*, as they are not within the application of the statute (which authorises by-laws as to *ventilation*) is, we believe correct. The explanation of such a regulation having been confirmed by the Local Government Board, as mentioned above, probably is, that it was submitted to the Local Government Board shortly after the power of confirming by-laws was transferred to that Board, and before they had departed from doing precisely as their predecessors had done.

NIGHTLY LODGINGS.

SIR,—I see by an article in the *Advertiser* of Saturday, August 11, that the Peabody Trustees contemplate purchasing the greater part of South Bloomsbury. They are said already to have purchased the ground-rent of the area enclosed by Prince's-street and Duke-street, Great Queen-street, Drury-lane (from Prince's-street to Great Queen-street), and on the east from Duke-street to Great Queen-street. May I suggest that, in erecting the new dwellings, that due consideration be given to the wants and necessities of the large class of persons who pay nightly. This class of unfortunates has hitherto suffered rather than benefited by the changes which have been wrought. Such persons do not consist wholly, as you are aware, of vagrants and tramps; it includes many who are simply under a cloud, and who are striving and hoping for better times. I have known many who have been forced temporarily into the lodging-houses about to be removed who were gentlemen in everything save their purses. Cannot the Peabody Trustees, in their contemplated new dwellings, occupy a portion of the site in which men with proper credentials can be accommodated in a way that will lessen the amount of misery entailed upon them by the misfortunes under which they temporarily labour?

A FRIEND IN NEED.

FALSIFICATION OF ACCOUNTS BY A BUILDER'S FOREMAN.

AT the Middlesex Sessions, on the 24th ult., Frederick Burns, foreman to Messrs. Colls, builders, was convicted of falsifying certain time-sheets, and thereby defrauding his employers. He was brought up for judgment on 26th ult., when Mr. Hamilton, the manager to the prosecutors, was called, and stated that the prisoner's honesty had been doubted for some time, but he had only looked into his last week's accounts. He believed these robberies had been going on for more than three months. The Assistant-Judge sentenced the prisoner to hard labour for eight months.

GRINDING MONEY AGAIN.

AT the Lambeth police-court last week, Mr. B. E. Nightingale, builder, of the Albert Works, Kennington, was summoned for refusing to pay to the complainant 9d. for one hour's grinding money, due to him as wages.

Mr. Hicklin (Messrs. Hicklin & Washington) appeared for the complainant, and stated that the question really was whether men employed in the building trade should have two hours' notice for grinding tools on their discharge. Mr. Brydges had given a decision in favour of the men, and so had Mr. Woolrych.

Mr. Chance asked how it would be if a man was engaged for a day. Would he then require to have two hours' pay for grinding money?

Mr. Hicklin contended he would be entitled to have it. The edges of the tools used by him would be taken off, and he would require time to have them placed in a condition to work with before he could go on other work.

Mr. Chance said under those circumstances if a man was employed each of the six days by different masters he would have twelve hours' pay also for grinding his tools. Was he (Mr. Chance) to understand that if a man was engaged one hour for a master, and then discharged, that he was to be entitled to two hours' money for grinding his tools?

Mr. Hicklin contended that he would, unless a special bargain was made.

William Gordon, the complainant, said he was a carpenter and joiner, and was engaged by the foreman in the shop. No one called his attention to any rules placed up in the shop. Nothing whatever was said to him about such rules.

Mr. Hicklin pointed out that the question as to grinding money was settled in July of this year at a conference between deputations of the carpenters and joiners of London and the Central Association of Master Builders. All masters were invited to attend that meeting, but a large number did not attend.

George White, shop foreman to defendant, said the complainant was taken on to work according to the rules of the firm. Those rules were placed upon the walls, and one of them specified that one hour's notice only would be allowed to collect and sharpen tools when discharged. He could not say that complainant had his attention called to such rules when he was engaged. When discharged, he was paid one hour for grinding money, and many of the large firms gave no more.

Mr. Chance said that might be, but it must be proved that he had read the rules. The safest course for firms who had rules would be to point them out to men when first engaged. Masters had a perfect right to make rules for conducting their several establishments. He strongly advised that masters or their foremen, when engaging men, should point out these rules. He should order the payment of the additional one hour, but no costs beyond the amount for the summons.

The Berwick-upon-Tweed Surveyorship. Mr. Jas. Lawrie, Edinburgh, has been appointed surveyor, &c., to the Urban Sanitary Authority of Berwick-upon-Tweed. There were forty-three candidates for the office. The salary is 140*l.* per annum.

LAWSUIT AGAINST A SURVEYOR FOR TRESPASS.

LIPTROT *v.* NICHOLSON.

THE plaintiff in this action, in the Wigan County Court, is a farmer, and the defendant is assistant-surveyor to the Pemberton Local Board. The claim was but for 5*s.* alleged wilful damage done to crops in a field. Two counsel were engaged, and at the opening of the case Mr. Peace, for the surveyor, objected to the jurisdiction of the Court, on the ground that the Railway Clauses Consolidation Act, 1845, which was incorporated in the Pemberton Local Board Act, provided that the compensation for damage done when levelling and surveying for the purpose of the Act should be settled by the justices of the peace.

The Judge, Mr. Pfoulkes, said before deciding the objection he should hear the evidence.

Witnesses were called, who proved that the defendant and a boy were in a field of the plaintiff's on June 18 last, and drawing a surveyor's chain along a potato bed, and committed damage to the amount claimed in the summons.

The defendant stated that he was merely surveying the land in connexion with the Pemberton waterworks, that the survey was performed in an ordinary and proper manner, and that no unnecessary damage was committed.

The learned Judge said the plaintiff sued for a trespass committed by the defendant in bringing a chain across his potato-field, by which he damaged the crop. Assuming that the surveyor had no right to enter the field, the claim was no more than the damage sustained; but the surveyor relied upon a local Act, which incorporated, among other Acts, the Waterworks Clauses Act; and under the 12th clause of that Act the surveyor was empowered to go upon the plaintiff's land and take the necessary surveys and levels, for the purpose of constructing waterworks. The Act further provided that compensation was to be given for all damage done in the execution of the work; but under the Railway Clauses Consolidation Act they were required to go before the justices to recover the compensation. The only claim the plaintiff could bring in the County Court was for wilful trespass, which was not done strictly in the execution of the work. He could not say he understood much of surveying with the chain, but he knew something of military surveying, and it was a fact that the person surveying did not wish to disturb the chain while the measurement was being taken from point to point. The evidence of the defendant seemed to him to show that he only did what was proper in carrying on his survey, and the plaintiff did not show that the surveyor did anything else. His judgment would be for the defendant, and he should order the plaintiff to pay costs.

VARIORUM.

The *Technical Educator* says, as to the gates of canal locks:—The timbers forming the gates of locks will vary in size according to the dimensions of the opening, and their respective depths below the water-level, the lower rails having to support a greater pressure than those above. The weight of water supported by each horizontal rail will be found by multiplying their length, the interval from one to the other (usually 38 in. from centre to centre), the height of the water above the centre of the rail, and the product by 62 lb. (the weight of a cubic foot of water), the last product of these measures giving the number of pounds which the rails ought to support throughout their whole length. For small gates, the timbers or rails may be from 4 in. to 5 in. square, and for larger, from 7 in. to 8 in., the latter being sufficient for a fall of 10 ft. 6 in., with a width of 17 ft. between the hanging-posts, six rails being put in the height. Whilst, on the one hand, it is desirable to have an excess of strength above the calculated requirement, it is, on the other hand, undesirable to make this excess excessive, as so much more weight is injurious to the supporting collar and the masonry to which it is attached. The diagonal direction of the braces may be dispensed with by the substitution of a bar of iron placed diagonally from the supporting collar to the lower end of the shutting-post. The escape of water through the gates must in every way be guarded against. It is very difficult, indeed almost impossible, to prevent its escape through the joint of the shutting-posts, because of the difficulty of making them touch throughout their own length. To obviate this, they should be cut in a circular form,—one concave and one convex. The curvature should be with a radius of about 12 ft. The rails are mortised into the uprights, and are further strengthened by strong angle-irons and T-pieces. ——Cassell's *Family Magazine* gives a useful hint as to how to clean a window. It seems a simple thing to clean a window, but in truth all those who essay do not succeed, for the glass looks dim and streaked afterwards, instead of being bright and clear. Do not tell me that this failure is owing to the quality of the glass, for, excuse me, it is not. I suspect that the window-cleaner is not up to the work. I should imagine that the boy or the maid has plunged a wash-leather into a bowl of water, and soused the panes, with an idea that that process was the proper one. It is this error of rubbing a very wet leather over dusty glass which causes the effect one so often sees. Let a duster be first used, and when the glass is tolerably free from dust, then let a damp washleather remove all specks and spots, and lastly, let a soft dry cloth give the finishing rub. The windows will then reflect a proper amount of credit, and will cheer the passers-by with their bright, sparkling panes. ——The *Daily Recorder* says:—"From present signs, the building trade seems likely to receive a large and constant development from the carrying out the Artisans' Dwellings Improvement Bill. Already the Town Councils of the great manufacturing towns have announced their intention to carry the measure into extensive operation. Corporations hitherto prevented by lack of funds from emulating the action of London now find themselves empowered, under the provisions of this Act, to raise sufficient means for public improvements known to be ultimately profitable. The planning and the surveying have for the most part been already executed; so that, one half-year being given to settling the purchase, clearing the ground, excavating foundations, and the many small but important matters that are not seen above ground, the actual business of building will commence briskly with the next spring, and a general move onwards and upwards take place in almost every trade, consequent on so large an outlay, amounting to several millions. At this period much will depend on the action taken by the working men connected with the building trade in its various branches. For now six years past that trade has been flagging, and almost brought to ruin by a succession of perverse strikes, the unions altogether refusing to recognise the falling off in demand and the rise in material."

Miscellanea.

Hardened Glass.—Messrs. Powell, of Whitefriars, who are experimenting on this process, say:—Hardened glass is not "unbreakable," it is only harder than ordinary glass, and though it undoubtedly stands rough usage better, it has the disadvantage of being utterly disintegrated as soon as it receives the slightest fracture; and up to the present, until broken, of being undistinguishable from ordinary glass, unless a certain pink tone noticeable in hardened flint glass can be taken as an indication. This glass is known as "toughened" glass, and we have seen the terms "malleable" and "annealed" applied to it. Nothing can be more misleading than these unfortunate epithets. The glass is hard, and not tough or malleable, and is the very opposite to annealed glass. Annealed glass is that the molecules of which have been allowed to settle themselves: the molecules of hardened glass have been tortured into their position, and until the glass is broken, are subject to an extreme tension. It is the sudden change of temperature that "hardens"; glass heated up together with the oil may be annealed, but decidedly is not hardened. A piece of hardened glass is only a modified Rupert's drop, *i.e.*, it is case-hardened; the fracture of both is identical, both resist the diamond, and both can be annealed. Moreover, in the middle of imperfectly-hardened glass, a line is plainly visible, which seems to mark the extent of the case-hardening. This line resolves itself, under the microscope, into a mass of bubbles and striæ, it seems to be the nucleus of breakage, and consequently, as soon as the cutting-wheel approaches it, utter destruction ensues.

The Ely Local Board of Health Surveyorship.—At the meeting, on the 25th ult., of the Ely Local Board of Health, part of the business related to the appointment of a surveyor, Mr. G. Mather (son of the late surveyor) having offered himself as a candidate for the vacant office. The late Mr. Mather occupied the position of surveyor for the City of Ely for twelve years, commencing at a salary of 120*l.* per annum. This sum was subsequently increased to 150*l.* The question now arose as to Mr. Mather's eligibility for the vacancy; and it was pointed out that he had for years been engine-driver under his father at the Angel Works; that he had acted as his father's deputy; that in some respects he possessed qualifications superior to those of his father; and that he had given satisfaction in the performance of his duties. It was stated that he was now the landlord of the Dolphin Inn; and he had signified his intention to give up the inn if he should be appointed to the vacant office. The Board did not come to any decision.

The New Law on Land Titles and Transfer.—This important statute, among the last passed on the day of the prorogation, has just been issued. It makes further provision for the simplification of the transfer of land in England. There are 129 sections in this Act, which is to come into operation on the 1st of January next. It is divided into five parts, each containing numerous provisions on the following subjects:—1. Entry of land on the register. 2. Registered dealings with registered land. 3. Unregistered dealings with registered land. 4. Provision supplemental to foregoing parts of the Act. 5. Administration of the law and miscellaneous. A land registry is to be established, and any person may apply to be registered under the Act as to freehold land, provided that in case of land contracted to be bought the vendor consents to the application. A separate register is to be kept for leasehold land, and certain persons may apply for registration. There are numerous provisions in the several parts, and a land registry is to be created and officers appointed by the Lord Chancellor. The present land registry, it is understood, will be utilised with the staff of officers, and they may be appointed and new rules framed at any time after the passing of the Act, but not to take effect till the 1st of January next. The further provisions now made to simplify title and facilitate the transfer of land are of a permissive character, and may be adopted.

Sanitary Matters in Spain.—A correspondent of the *Morning Post*, describing the siege of Seo de Urgel, has something to say on the sanitary condition of the place. He says that although crammed with soldiers to overflowing the place is perfectly healthy: this is due, no doubt, to the mountain air and dry atmosphere. When the refuse left in the middle of the street to rot, *à la mode Espagnole*, becomes offensive, a very simple process is adopted by the authorities to remedy it: a torrent of water is let out through the streets from the irrigating canal constructed many years since to water the fruitful valley in which the place is situated. The Spaniards are more Arabs than Europeans in their dwellings, and have not the slightest idea of taste in the exterior or interior of their homes. The climate renders it unnecessary for them to make use of paint as a preservative for the woodwork of their houses; consequently, when once they are built they become more and more begrimed every year, and as no new house appears to have been built in this town for the last two or three centuries, it is easy to imagine what the state of them is. The inhabitants—even those of the better class—partake of the character of the houses, and appear never to change their garments.

Dynamite.—The increased amount of work done with dynamite as compared with either gunpowder or gun-cotton has frequently been noticed, but the precise relative economy of the several explosives is, perhaps, less generally known. The St. John del Rey Mining Company, during the last two months of 1870, when they were sinking the two new shafts, sunk with gunpowder 10 fms. 2 ft. 4 in., at a cost of 68*l.* 3s. 6d. per fathom; during the following two months they sunk with dynamite 20 fms. 8 in., at only 43*l.* 14s., so that double the work was done, and there was a saving of 24*l.* 9s. 6d. per fathom. The contractors for the railway tunnel under Clifton Downs used gunpowder, gun-cotton, and dynamite successively,—the boreholes being drilled by machinery to the same dimensions and depth,—and the results were that 756 lb. of powder drove 8 yards, thirty-one shots per yard forward being put in; and 169 lb. of gun-cotton drove 14 yards, eighteen shots per yard being put in; and 165 lb. of dynamite drove 15 yards, seventeen shots per yard forward being put in. For driving 15 yards forward, estimating powder at 5d. per lb., and gun-cotton and dynamite at 2s. per lb. each, it would cost 29*l.* 10s. 7d., with powder, 18*l.* 2s. 2d. with gun-cotton, and 16*l.* with dynamite. The saving in time is even greater than the saving in cost.

Sadlers' Wells Theatre.—At the Mart, Tokenhouse-yard, among the sales announced for Tuesday last was the lease of Sadlers' Wells Theatre, which was described as being held for an unexpired term of thirty-six years from Midsummer last, at a ground-rent of 277*l.* per annum, and the estimated rental value of 1,000*l.* per annum. The theatre was withdrawn at 1,020*l.*, the auctioneer remarking that he expected to have got 3,000*l.* for it.

New Goods Depot, Farringdon-road.—The new goods station which has been for some months past in course of construction in Farringdon-road, is now nearly completed. It belongs to the Great Northern Railway Company, and will cost upwards of 100,000*l.* (exclusive of land). It will be one of the largest railway goods depôts in England, covering an area of 25,000 superficial yards, or rather more than five acres. The site, which is on the west side of the Farringdon-road Station, was purchased from the Metropolitan Railway Company, and junctions have been effected with that portion of the Metropolitan Railway used by the Great Northern, London, Chatham, and Dover, and Midland Companies. Much engineering skill has been brought to bear, and the whole of the retaining wall in Farringdon-road, from the middle-level sewer to Charles-street, has been underpinned. In clearing the earthwork down to the rail levels, upwards of 55,000 cubic yards of soil have been removed. For the foundations of the basements of the piers it has been found necessary to go much below the rail levels, owing to the shifting nature of the ground. Extensive warehouses, built by Messrs. Kirk & Randall, of Woolwich, rise on piers, arches, and columns from the railway level below.

Northampton Operative House Painters' Society.—This society, which is in amalgamation with the General Alliance of Operative House Painters, the head-quarters being at Manchester, held its anniversary on the 21st ult. The Northampton society has now been in existence some eight years, and has been uniformly successful. It numbers at the present time some sixty paying members, with a correspondingly good state of funds. Fresh benefits have lately been added, by which the relatives of a member meeting with a fatal accident while occupied at his trade are entitled to the sum of 10*l.* from the Alliance, and a further 4*l.* from the local society. It has been the custom in former years to hold the annual dinner at the club-house, but this year the committee determined upon holding it at the Melbourne Gardens, where exactly fifty members sat down to dinner. The number of societies in connexion with the General Alliance was said to be upwards of seventy, containing upwards of 7,000 members.

Mr. Poynter, A.R.A.—Although Mr. Poynter has been appointed Inspector-General of Schools of Art in place of Mr. Redgrave, he will (according to the London correspondent of the *Birmingham Daily Gazette*) continue to hold his Slade professorship at University College. He delivers his introductory lecture on October 5, and the classes for drawing, painting, and sculpture will begin on the following day. Those who want to attend these lectures should apply at once, for of late the accommodation has proved quite unequal to the demands made upon it. Mr. Felix Slade, who founded this professorship, founded also six scholarships of 50*l.* a year each, tenable for three years, for proficiency in drawing, painting, and sculpture. Two of these scholarships will be awarded in 1876, and the conditions of competition are, that the competitors must have entered the Fine Arts Class at University College before November 16 next, and not be more than nineteen years old next June.

The Prout Memorial.—Mr. Dillon Croker has given two readings in aid of the Prout Memorial Fund at the Royal Cork Institution, and greatly pleased his audience. The chair was occupied by Richard Caulfield, esq., LL.D., who introduced Mr. Croker in a few brief remarks. At the time of the commencement of the reading, the bells of Shandon, made ever memorable by Father Prout's well-known stanzas, rang out the time-honoured melody of "The Groves of Blarney," to which air words have been set, and Mr. Croker, meeting the occasion, read the poem with capital effect. The other pieces in the programme included "Nicholas Nickleby at Dotheboys Hall," "Peg of Limaviddy," one of "Mrs. Caudle's Curtain Lectures," &c., all of which were read by Mr. Croker in a manner that proved him to be a master of the art of public speaking of first-class merit.

The City Library, Guildhall.—The City Library, Guildhall, which has been closed since the 22nd of July, was re-opened on Monday last. During the recess it has been thoroughly cleansed and repainted, and the library itself re-organised. The Corporation of the City of London have granted 400*l.* for the compilation of a new catalogue.

Life-saving Appliances.—A very interesting exhibition is announced to take place next year at Brussels, under the auspices of the Royal Humane Society of Belgium, the object being to call into action the ingenuity of all who are willing to enlist in the good cause for the purpose of devising the best possible means of reducing the risks to which life and limb are now exposed. According to the *Rock*, questions of public health and sanitary arrangements are ranged under the fifth class, which also comprises such improvements in connexion with medicine generally as may be considered of sufficient interest to be shown. Industrial operations are, in many instances, carried on under deplorably unfavourable conditions, notwithstanding all that has been done for the workman in this direction, and so the Belgian Society proposes to show what more may be accomplished in the way of getting rid of these evils.

The Sanitary Condition of Hull.—At the last monthly meeting of the Hull Board of Health, held on the 26th ult., Mr. Blackburn called attention to the increasing death-rate of the town, which, he said, was a terrible indictment against the Board. He referred to the report of the medical officer, and condemned the existing sanitary state of things. He blamed the Board for being accessory to the increasing mortality, and declared that without any stretch of the imagination he could hear the wail of the widow and the orphan, caused by the supineness of the Board. They had spent hundreds of thousands in constructing a deep drainage, and he gave notice that at the next meeting he should move that the sanitary committee report upon the propriety of appointing a medical officer in such a manner as would enable him to devote the whole of his time to the duties of the office.

Withdrawal of a Tender.—At the usual fortnightly meeting of the Marylebone Board of Guardians, on Friday last, a letter was read from Mr. H. Saxon Snell, the architect, informing the Board that Mr. Timewell, of 35, Essex-road, Islington, wished to withdraw his tender (1,660*l.*) for building basement story and foundations of the new infirmary wards for men, in Northumberland-street, in consequence of his (Mr. Timewell) having made a mistake in the calculations upon which his tender was based. The Chairman stated that legally Mr. Timewell could not withdraw his tender, but the Board were not desirous of being hard in the case, and he would suggest that the application should be granted, and the 5*l.* deposit money returned. A resolution was adopted embracing the views of the Chairman. The Board then accepted the tender of Mr. Crockett, of St. Pancras, for the sum of 1,849*l.*

Leeds Royal Exchange.—On the 31st ult. the Royal Exchange, Leeds, was opened to the public with a short ceremony, in which Mr. Nussey, chairman of the company who have erected it, took the leading part. The foundation-stone was laid by the Duke of Connaught in September, 1872, on the occasion of his visit to Leeds for the purpose of opening Roundhay-park to the people. The Exchange has been built by a company of merchants and representatives of the iron, flax, leather, machinery, and other trades. The style of architecture is Perpendicular Gothic, the architect being Mr. Waterhouse, whose designs have been carried out by Mr. Healey and Mr. Whiteley. The merchants and manufacturers representing the various industries of the town and neighbourhood attended in considerable numbers.

New Barracks for Richmond, Yorkshire.—A correspondent of the *Leeds Mercury* writes that there is now no doubt about Richmond becoming a military centre. The War-office authorities have made arrangements for the erection of new barracks. The contractors for the works are Messrs. Parnell & Son, of Rugby, and it is calculated that a sum of about 100,000*l.* will have to be expended before the works are completed. The site is almost on a level with the racecourse, and is therefore elevated, healthy, and conveniently situated. The ground staked out is nearly fifteen acres in extent.

Carpenters in the Royal Navy.—Mr. J. Filluck, acting first-class draughtsman at Portsmouth Dockyard for the instruction of carpenters of the Royal Navy, has been appointed established first-class draughtsman for the instruction of carpenters of the Royal Navy at Chatham dockyard, *vice* Mr. F. Jago, who has been appointed a surveyor to the Board of Trade.

Another Tombstone Case.—It is not improbable that the public may, before long, hear of another legal case arising out of a dispute in reference to the erection of a tombstone in a parish churchyard. In this instance, however, the stone is objected to on æsthetic rather than on ecclesiastical grounds. It appears that in a mason's yard in the parish of Horsemonden near Staplehurst, there is a stone ready for erection in the parish churchyard, the stone, it is said, being of the form which has been common in English churchyards for centuries. The rector has refused resolutely to have so "hideous" a stone erected in his churchyard, remarking that all stones there have, and must have, upon them the form of a cross. The matter will probably result in an appeal to the Archbishop of Canterbury.

Gas Dividends.—The Brighton Gas Company has declared a dividend for the past half-year at the rate of 9 per cent. per annum as against 10 per cent. per annum in the previous half-year.——The Ludlow Gas Company, at its annual meeting, held last week, resolved that a dividend of 5 per cent. be paid to the preference shareholders for 1874, and that a dividend of 3 per cent. be paid to the original shareholders.——The directors of the Gloucester Gaslight Company recommend that the maximum dividend be declared for the past half-year, viz., 10*l.* per cent. per annum upon the "A" shares, and 7*l.* 10*s.* per cent. per annum upon the "B" shares.——The Barnet District Gas and Water Company have declared a dividend for the past half-year at the rate of 3*l.* per cent. per annum on the "A" stock and shares, and 2*l.* per cent. per annum on the "B" stock.

Slaughterhouses in St. Pancras.—At a meeting of the St. Pancras Sanitary Committee on the 25th ult., Dr. Stevenson, medical officer of health, reported that he had visited one slaughterhouse, where the state of things was truly horrible. The paved approach was thickly coated with soft fœcal matter, and strewed with sheep's heads from which the blood was still oozing. This mixed heap of dung and offal was offensive, and had not been removed for several days. Inside the slaughterhouse the impervious portion of the walls had not been cleansed after slaughtering as required by the bye-laws, but filth had been allowed to dry on them. For some years this slaughterhouse had been the subject of complaint from the neighbours. He recommended a prosecution for infringement of the bye-laws. A motion to institute a prosecution was negatived by nine to seven.

The St. Gothard Tunnel.—An exhaustive and interesting communication upon this great engineering work was read before the recent Geographical Congress at Paris. Up to August 1, 1875, the length of tunnel driven was 4,413 mètres, leaving 10,507 mètres to drive, and the whole must be completed by October 1, 1880. Allowing ten months for the finishing of the tunnel after the ends are joined, the communication should be made in December, 1879, and as the work was commenced in September, 1872, it will have occupied seven years and two months. The rate of progress hitherto has averaged 126 mètres per month; they are now making 230 mètres per month, and this will, no doubt, be increased, whilst 202 mètres per month will complete the work within the time stipulated.

The West Front of Lichfield Cathedral. In a sermon preached on Sunday, the 22nd ult., in Lichfield Cathedral, Dean Bickersteth declared that he contemplated the complete restoration of the west front of his cathedral, under the direction of Sir Gilbert Scott, who restored the interior. As the preacher aptly put it, he desired to do something towards making that which is without worthy of that which is within, and, at all events, to restore the west front according to its ancient features by replacing the Roman cement with good honest stone. The cost of the contemplated work is matter for conjecture, but on the subject being mooted some years ago, it was stated that it would require some 20,000*l.*, an estimate which now-a-days would probably have to be considerably increased.

New Mechanics' Institute for Northowram.—A new Mechanics' Institute at Northowram, which has been erected at a cost of 2,000*l.*, was opened on the 25th ult., by Mr. A. B. Foster, of Northowram Hall. The building contains a large concert-hall, four commodious class-rooms, and committee and billiard rooms. The architect is Mr. Hellewell, of Brighouse.

The Prizes of the Coachmakers' Company.—In the late competition for prizes of the Worshipful Company of Coachmakers and Coach Harness-makers of London, open to the coachmakers of the United Kingdom, and carried out by the examiner of the Society of Arts, the first prize for the technology of carriage building, consisting of the Society's silver medal and 3*l.*, was awarded to Mr. Matthew Mullins, of 42, Maylor-street, Cork (coach body-maker). Mr. Mullins and his brothers, Thomas and Jeremiah, have been diligent students of the Cork School of Art, and their names have been frequently mentioned in connexion with these competitions as having carried off some of the highest prizes offered by the Worshipful Company to the artisans in this speciality of the United Kingdom.

A Cab Show.—An exhibition of metropolitan cabs and cab-horses will be held on the 1st of October at the Alexandra Palace, under the patronage of the Earl of Shaftesbury, the Lord Mayor, the Royal Society for Prevention of Cruelty to Animals, &c. The object is to produce improved cabs, and the movement is, according to the *Daily News*, being supported by the cab proprietors. About fifty prizes, running up to 10*l.*, will be given, and among them two prizes of 10*l.* and 5*l.* are offered to the exhibitor of the best design for a cabman's shelter, to be erected on the cab ranks, at a cost not exceeding 75*l.* Previous efforts in the direction of obtaining improved cabs and cab-horses have not met with much success.

Discovery of Urns at St. Alban's.—In making the excavations for the foundation of some new buildings in the Verulam-road, St. Alban's, the workmen engaged have just dug up a number of ancient urns. They were found to be very rotten, but two have, with care, been tolerably well preserved. The best specimen is an urn made of common clay, 7¾ in. in height, and 8 in diameter. There is no ornamentation except at the mouth, which has an everted lip with two shallow grooves. The almost entire absence of ornamentation renders it somewhat difficult to say whether these funeral urns are British or Saxon, although the balance of evidence is said to be in favour of their being British.

Civil and Mechanical Engineers' Society: Visit to East London Railway Works.—On Saturday last Mr. G. W. Willcocks, president, Mr. R. M. Bancroft, vice-president, Mr. E. H. Brewster, and several members and friends, visited the above works, by the kind permission of Sir J. Hawkshaw, and were shown over by the resident engineer, Mr. Hunt. Great progress has been made since the account of the works was given in the *Builder* some months back. This society is making good use of the summer recess by visits to works on alternate Saturday afternoons, and has already been to the Pumping Station, Grosvenor-road; Royal Aquarium, Westminster; and widening of Chalk Farm Tunnel.

Birmingham.—The ceremony of unveiling the window which has been placed in St. Asaph's Church, Great Colmore-street, as a testimonial to the labours of the Rev. R. Page, M.A., the first vicar of the parish, took place on Saturday last in the presence of that gentleman. The window, which comprises four cartoons, representing four incidents in the life of our Lord, viz., the Baptism, the Call of Peter and Andrew, the Transfiguration, and the Anointing at Bethany, is inclosed in richly-coloured ornamentation, the whole surmounted by tracery representing the emblem of the Lord's Supper. The window is one of four executed by Mr. C. Heritage, of Marshall-street, Birmingham.

The Corporation of Rochester, at a special meeting held on the 24th ult., resolved to instruct the town clerk to institute Chancery proceedings against the Secretary of State for War, and Messrs. Jackson & Shaw (the well-known contractors), for infringing the rights of the Corporation of Rochester as owners and conservators of the Medway. The Government has employed Messrs. Jackson & Shaw to commence the construction of a bridge at West Hoo Creek, without having first received the permission of the Corporation.

Board Schools and their Cost.—The whole amount of expenditure for school buildings, sanctioned up to April 30th, 1875, was 4,021,418*l.* The sums actually taken up as loans amounted on the 25th of March last to 3,151,000*l.*, or rather more than three-fourths of the sanctioned expenditure.

A New Tramway-Car.—The Scott-Moncrieff tramway car has been tried at Glasgow with success. The car, which is impelled by compressed air, is rather larger and heavier than an ordinary tramway-car, and can, it is stated, be driven at ten miles an hour, but its usual speed in towns is to be only six. At this rate the car can be taken up and down the steepest gradients overcome by the usual tramway-cars, makes no noise, and is said to cost for motive-power only 1½d. a mile, against 7d. per mile when drawn by horses. The invention, if really as cheap as is alleged, is likely to be useful for cross-country railways.

A New Circus for Paris.—The large building on the Boulevard du Temple, known as "Les Magazins Réunis," has just been leased for twenty years to Mr. W. J. Myers, an American circus proprietor. The interior courtyard is 240 mètres in length, and 135 mètres wide. The entire roof is covered with glass, supported by iron girders, after the style of the Floral Hall, Covent-garden. Messrs. Defries, of London, have contracted to light and decorate the building, which is being remodelled by a French firm. When complete, it will seat about 7,500 persons.

Cost of our Fortifications.—From a return just issued by the Government we learn that, up to the present time, we have spent close upon seven millions (6,987,910*l.*) upon our national fortifications. By far the largest sum expended at any one place was at Portsmouth, where close upon three millions have been spent. Plymouth stands next with 304,680*l.* and 1,181,816*l.*, making a total of 1,486,496*l.* Portland is third on the list, but with less than 400,000*l.* A sum of 377,686*l.* was spent in providing and fixing iron shields.

St. George's Church, Worthing.—This church, which was partially erected some few years back, has just had a large entrance corridor added towards the sea front, also a good semi-circular ended vestry, &c., towards the west, with a boundary wall to inclose the land and a few other improvements also. The transepts, with tower and spire, have still to be built to make the church complete. Mr. George Truefitt is the architect to the building, and Mr. Smith, of Worthing, was the builder for the late additions.

Supposed "Rattening" by Brickmakers. A serious case of "rattening" has occurred at the new Military Depôt, at Warwick. The contractors, Messrs. Davis & Banbury, had, at great expense, erected a machine capable of making 28,000 bricks a day, and some miscreant has placed a pick-staff between the rollers, and otherwise damaged it so that the machine cannot be worked. A serious loss will result to the contractors. A reward has been offered for the apprehension of the offenders.

New Market for Rotherham.—On the 23rd ult. Messrs. Hill & Swann submitted to the Market Committee of the Rotherham Town Council two block plans, marked A and B, of the proposed new market. The Committee recommend that the block plan marked B be approved, with the addition of arches extending 40 ft. from the lower end, and providing the work can be done for 5,000*l.*; and that the architects be instructed to prepare the necessary drawings, elevations, and estimates for the work.

The Bessemer Steamboat Company is stated to be in liquidation, and the *Bessemer* is for sale. The failure of the enterprise is said to be "in consequence of the want of the requisite accommodation in the French harbours." Was not the extent of this accommodation known before the Bessemer was built?

Tadcaster Church.—Notwithstanding the protests of antiquarians and others, the whole of this interesting edifice, with the exception of the tower, will, it is stated, be entirely taken down in the course of six weeks. The work is progressing rapidly, the interior being now gutted and the building unroofed.

TENDERS

For the Enfield Industrial School. Mr. T. J. Hill, architect. Quantities supplied by Messrs. Osborne & Russell:—

Field	£2,090 0 0
Bayes & Ramage	1,890 0 0
Beatley	1,850 0 0
Patman (accepted)	1,787 0 0
Fairhead	1,769 0 0
Sabey & Son	1,763 0 0

For constructing a portion of the main drainage works in the Coombe Pafford Valley, St. Marychurch, Devon. Messrs. Tarring, Son, & Wilkinson, surveyors:—

J. & G. Bell	£2,448	10	2
Wilcocks	1,897	0	0
Shaddock	1,379	0	0

For rebuilding first portion of Stoke House, near Bletchley Station, for Mr. B. T. Fountaine. Mr. J. T. Lawrence, architect. Quantities by Mr. H. Cooper:—

T. & S. Orchard	£4,500	0	0
Edwards	4,312	14	0
Twelvetrees	3,998	0	0
Staines & Son	3,974	0	0
Stephenson	3,948	0	0
Wigmore	3,799	10	0
Foster	3,750	0	0
Ireson	3,750	0	0
Adams	3,590	0	0
Dover & Co.	3,379	0	0

For a villa for Mr. Handley, Highbury. Mr. T. J. Hill, architect:—

Keen	£746	0	0
Webber	714	0	0
Davies	395	0	0

For building new premises, East India-road, for Mr. Gundlach. Messrs. Hammack & Lambert, architects:—

Judd & Hawkings	£509	0	0
Chaffen & Jarrow	497	0	0
Mitchell	477	0	0
Abrahams	465	0	0
Riddle	455	0	0

For building two houses, coach-house, and stable, in the Herbert-road, Woolwich, for the Imperial Property Investment Company, Limited. Mr. George Lethbridge, architect:—

Judd & Hawkings (accepted)	£1,278	0	0

For erecting a play-shed and making certain alterations in the boys' school buildings, for the Newport (Isle of Wight) Board of Guardians:—

Ball	£431	9	9
Dyer	397	15	0
Cooper	395	5	0
Saunders (accepted)	391	9	0

For the enlargement of the Board-room of the Union Workhouse, for the Gloucester Board of Guardians:—

Peters	£614	0	0
Jones	580	0	0
Meredith	478	0	0
Cullis	440	0	0
Sims (accepted)	439	0	0

For the erection of buildings for the Long Eaton Working Men's Co-operative Stores. Messrs. Robert Clarke & Son, architects:—

Hodson & Facon	£5,197	0	0
Slight	4,890	0	0
Jelley	4,913	0	0
Messom	4,749	0	0
Vickers	4,690	0	0
Slin	4,390	0	0
Duke	3,370	0	0
Poxen (accepted)	4,300	0	0

In the matter of 44 and 45, King's-road, Brighton:—

				Deduct if bay windows above first floor are not executed.		
Barnes	£6,550	0	0	£225	0	0
Newman & Mann	6,275	0	0	285	0	0
Merritt & Ashby	6,150	0	0	250	0	0
Cheesman & Co.	5,890	0	0	240	0	0
Chappell	5,872	0	0	189	0	0

*** This list has appeared before; but the gentleman who sent it had *added* to the general amount what should have been deducted.

For the erection of Board schools and residence, Potton, Bedfordshire. Mr. J. G. Raynes, architect. Quantities by Mr. Charles Kirkby:—

Woodman	£4,333	0	0
Osborne	4,146	0	0
Twelvetrees	4,125	0	0
Burnage (too late)	3,705	0	0
Redhouse	3,607	0	0
Langmead & Way (accepted)	3,535	0	0
Rainsford, Son, & Bartle*	3,196	5	0

* Withdrawn.

For Langdon Hills Rectory, Essex. Mr. Wm. White F.S.A., architect. No quantities:—

Woodbridge	£1,775	0	0
Hammond	1,775	0	0
Gregory (accepted)	1,769	0	0

For new roofs and other works at Corringham Church, Essex. Mr. Wm. White, F.S.A., architect:—
Gregory (accepted).

For alterations at the Old Hall, Asfordby. Mr. R. W. Johnson, architect:—

Herberts	£1,098	0	0
Halliday & Cave	975	0	0
Neale & Son	964	10	0

For factory at Kettering, Northants. Mr. R. W. Johnson, architect:—

Margetts & Manley	£2,661	0	0
Bellamy	2,538	0	0
Henson	2,423	0	0
Sharman	2,389	0	0
Barlow	2,320	0	0

For new schools and residence, for Great Dalley School Board. Mr. R. W. Johnson, architect:—

Hayes	£1,210	0	0
Neale	1,075	0	0
Weaver	1,073	0	0
Barnes	950	0	0

For new schools for Garthorpe and Costa School Board. Mr. R. W. Johnson, architect:—

Weaver	£591	0	0
Barnes	524	10	0
Chester	483	0	0

For formation of new streets at Kettering. Mr. R. W. Johnson, surveyor:—

Henson	£2,160	0	0
Nowell & Robson	2,067	0	0
Paget	1,964	0	0
Lynch	1,934	0	0
Jones & Fitzmaurice	1,922	0	0
Pound	1,855	0	0
Sharman	1,770	0	0
Barlow	1,710	0	0
Mangells	1,685	0	0

For new Wesleyan chapel, school, and minister's house, Chichester. Mr. A. Lauder, architect. Quantities supplied by Mr. R. Carpenter:—

Fielder	£4,207	0	0
Smith & Co.	4,001	0	0
Burton	3,985	0	0
Marshall	3,957	0	0
Smart	3,917	0	0
Quick	3,864	0	0
Coles	3,757	10	0
Sibley	3,648	0	0
White	3,317	0	0
Burbridge	3,224	0	0
Lose (accepted)	3,016	0	0

For new entrance-lodge, Booth's Hall, Knutsford, Cheshire. Mr. Arthur Vernon, architect:—

Molyneux & Son	£625	0	0
Leicester	560	0	0
Stelfix, Carter, & Rylance	534	0	0
Tickell & Son (accepted)	475	0	0

For new Board schools, with master's residence, at Tyler's Green, Bucks, for the High Wycombe School Board. Mr. Arthur Vernon, architect:—

Woodbridge (accepted)	£1,870	0	0

For house and stabling at Stamford, for Mr. Orlando Edmonds. Mr. Wm. Eve, architect:—

Corby (accepted)	£2,674	0	0

For fittings to new bank, at Peterborough, for Stamford, Spalding, & Boston Banking Company. Mr. Wm. Eve, architect:—

Hall (accepted)	£538	11	0

For alterations and additions to 124, 126, and 128, Goswell-road, for Messrs. Carter, Paterson, & Co. Mr. Wm. Eve, architect:—

Salt	£1,375	0	0
Woodward	1,340	0	0
Crabb (accepted)	1,255	0	0

For alteration of shop at 75, High-street, St. John's Wood. Messrs. Ebbetts & Cobb, architects:—

Perkings	£199	0	0
Aitchinson & Walker	179	0	0
Steel, Brothers (accepted)	136	0	0

For re-building 205, High-street, Shoreditch. Mr. W. Bradbear, architect:—

Goodman	£697	0	0
Garrad	683	0	0
Riddle & Son	645	0	0
Steel, Brothers (accepted)	615	0	0

For alterations and repairs at 38, Great Queen-street, Lincoln's-inn-fields. Mr. W. Bradbear, architect:—

Riddle & Son	£372	0	0
Steel, Brothers (accepted)	270	0	0

For alterations and new shop-front, No. 385, Brixton-road, for Mr. C. Newsom:—

Haydon	£115	0	0
Howse	112	0	0
Pearce	89	15	0

For Primitive Methodist chapel, Romford. Mr. E. C. Allam, A.I.C.E., architect:—

Gordon	£1,518	0	0
Davey	1,242	10	6
White	1,159	10	0
Hinds	1,100	0	0
Barwell (accepted)	925	0	0

For a dwelling-house for Mr. B. McLeod, Chislehurst. Messrs. Stenning & Tyerman, architects:—

Crossley (accepted)	£3,000	0	0

For the erection of saw-mills, chimney-shaft, and sheds, at Deptford, for the General Steam Navigation Company. Messrs. Stenning & Tyerman, architects:—

Murria	£910	0	0
Pattison	884	0	0

For alterations and additions to St. Katherine and Irongate Wharfs, East Smithfield, for the General Steam Navigation Company. Messrs. Stenning & Tyerman, architects. Quantities by Mr. H. F. Gretten:—

Ashby & Horner	9,090	0	0
Holland & Hannen	9,033	0	0
Webster	8,900	0	0
Macey	6,389	0	0
Sabey & Sons (accepted)	6,265	0	0

For the erection of a river wall, engine-houses, and chimney-shafts, for the Thames Steam Ferry Company, Wapping and Rotherhithe. Messrs. Stenning & Tyerman, architects:—

Gibson	£12,955	0	0
Perry	8,240	0	0
Lee & Son (accepted)	7,195	0	0

The tender of Messrs. Guynan & Son, for the whole of the blinds to the Rotherhithe Infirmary, Mr. Saxon Snell, architect, has been accepted.

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We are compelled to decline pointing out books and giving addresses.

All statements of facts, list of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

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NO GAS IN DAYTIME.

Use Chappuis' Patent Daylight Reflectors.

MANUFACTORY: 69, FLEET STREET.